ABSTRACT OF

The Bradshaw Lecture

ON

CANCER, ITS TREATMENT BY MODERN METHODS.

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MR. PRESIDENT AND GENTLEMEN,—Having been left unfettered as regards the choice of subject for this lecture, I have fixed upon that of cancer; indeed, in various ways, time and circumstances seem almost to suggest it. But the subject is so vast and important, that it is impossible for me to treat it, or any part of it, in detail. I shall, therefore, have to satisfy myself with pointing out a few of the directions in which the treatment of the disease has been advanced by modern methods.

I shall begin with an absolute statement that, in the present state of medical and surgical knowledge and experience, the only way in which the cure of a cancer can be obtained is by its prompt and thorough removal by operation. And when a surgeon has made up his mind that a growth is malignant, and that it can, and ought to be removed, he should lose no time. He will probably be asked as to the nature of the operation advised; and this question may possibly be followed by the rejoinder that in no circumstances will consent be given to an operation by the *knife*. And so it comes about that a surgeon is sometimes unwillingly led to discuss the problem of treatment by x rays, or by some other method based on electricity, when his opinion is that reliance ought not to be placed on anything short of a cutting operation. No surgeon in a desire to lessen mental distress, or allay the dread which a patient may have of a tumour being removed by the knife, should be induced to consent to his or her dallying with any problematical scheme of treatment.

The custom has grown up in recent years for certain daily papers to endeavour to instruct the public on questions relating to disease and its treatment. Whether this is to the mental and physical advantage of the public is open to question, but there can be no doubt that people in general are taking an increasing interest in such matters. Some of the journalistic productions to which I refer are written in an authoritative, convincing, and equally irresponsible style; whilst others are, at the best, only disguised advertisements of individuals who have been permitted to bask in editorial sunshine. But the result is that the newspaper-reading public are by no means ill-informed as to the lines on which surgical treatment is advancing. The subject has a weird charm for them; and details, real or imaginary, of such things as the possible therapeutic influence of the Finsen light and the x rays in the treatment of malignant disease have proved specially attractive. And so it has come about that these agencies, which are still only on their trial, have been popularly accredited with powers which, to say the least, cannot rightly be claimed for them; and the risk has arisen of their being exploited by the incompetent and quacked by the unscrupulous. And thus, in the desire to try the effect of specious methods, patients may be led to waste time—and time is everything in the treatment of cancer.

The public have apparently the idea that somewhere in the invisible spectrum, beyond the x rays, they are to find certain "rays of hope"; and to these they cling with increasing tenacity when they learn from the operating surgeon that, even if he be allowed to deal with a cancerous growth by a free cutting-operation, he still is unable to *promise a cure*. And, unfortunately, no operator could ever be justified in making such a promise. Surgery must not go in advance of facts, or she will assuredly be overtaken and tripped up, as she has learnt from sad experience. At present *it is beyond her power to promise to cure cancer*, whether by a cutting-operation, by x rays, by Finsen's light, or by any drug or nostrum injected into the blood, taken internally, or applied locally. Treatment is unfortunately, not the same thing as cure, and the most effectual treatment for cancer—no matter how small it may be—is still removal by the knife. No measure is so trustworthy as this, and the great advantage which it has over every other is that it enables the surgeon to take away also the infected neighbouring lymphatics, and the outlying lymphatic glands. It is by the freedom and thoroughness of recent improvements in operating, that surgery has made such great advances in the treatment of the disease. That she has advanced, and is still advancing, is beyond dispute. But all that the surgeon is at present justified in promising a patient is that he will "do his best." And with this in view he makes a wide sweep of the growth with his knife, getting so far beyond it, indeed, that he may well hope and believe that, together with the tumour, he has taken away every outlying cancer-germ. But, notwithstanding his wide sweep, he cannot be *sure* that none of these germs had already passed beyond its range. And a cancer-germ adrift in the lymphatic stream is like a message thrown out to sea in a bottle: it may be found years afterwards—who can say when or where?

CANCER OF THE BREAST.

It would be impossible for me to allude to the advances which surgery has made in recent years in the treatment of cancer of the breast, without speaking of the work done in this direction by the late Sir William Mitchell Banks. I regret to say that his teaching has not received in this country that recognition which was its just due. Too much is it the fashion here, when surgeons are writing upon any professional subject, to quote German, American, French, or unpronounceable Russian authorities, and to leave in the cold shade of neglect all that has been done by workers near at hand. Banks was one of the very first surgeons in the whole world to show that if we were to obtain better results for our operations on cancerous breasts, we must be more *thorough* in our dealings with them. His earliest essay on the subject appeared in 1877 (just on 30 years ago), and in it he insisted on a greater thoroughness. His second paper was read at the Worcester meeting of the British Medical Association in 1882. Its title was "On Free Removal of Mammary Cancer, with Extirpation of the Axillary Glands as a Necessary Accompaniment." He was there preaching from the text of the need of clearing out the arm-pit, and he said, "until we have these glands in our hand, and have split them open with a knife, we cannot tell whether they are infected or not. The usual fumbling in the axilla, which is practised by surgeons [this was written 24 years ago] tells nothing," and he urged that *in every case where the breast is removed, the axilla should be cleared out as a necessary accompaniment*. His third paper was read before a meeting of the Harveian Society in 1887. In it he insisted that by clearing out the arm-pit as part of the operation for the removal of a cancerous breast, the duration of life was prolonged, and the recurrence of cancer less often took place.

It is well worth the while of any surgeon who is interested in the work of Banks having bare justice done to it, to turn up the report of the discussion on that Harveian paper, and to see how poor a measure of support it received! The address was in Banks's happiest, most breezy style; and those who heard it and those who read it subsequently, should have no need to steam across the Atlantic Ocean, or the North Sea, to find the surgeon who has been the chief pioneer in the more thorough treatment of cancer of the breast. Having written these few words in devoted memory of Banks, I see him once more in my mind's eye, a welcome speaker in the Council chamber of this College, or at some professional or social gathering. No need, when he was speaking, Ulysses like to stuff one's ears; the magic of his words was all for good. There was a something about which showed that they came from his heart rather than his head, and this not only gave them the stamp of downright honesty, but also made them full of life! No one, I admit, could claim that they never caused a passing wound. How can a man who speaks from his heart help that at times? As he feels so he speaks; and though this may not make for popularity it does for honesty. And Banks was honest as the day. He would doubtless have agreed with the great Lord Mansfield, that not that popularity is to be desired which a man seeks for himself, but rather that which follows him. In spite of his fearless words, popularity followed Banks; and it is not too much to say that those who knew him loved him!

In connexion with the subject of the modern treatment of mammary cancer, I would like to insist that, when a surgeon is setting out to operate, he must not have a thought as to how he is ever to get the edges of the wide wound together subsequently. The one important thing for him to do is to cut clear of all tissue that may possibly be infected. Nature can be trusted to heal the gap that he needs must leave, and he may draw heavily upon her. In the early stage of his operation, when he is working deeply at the inner end of the wound, he should cut down until he has laid bare some of the fibres of origin of the pectoralis major, then he should get his finger-nail under the pectoral fascia and peel it with the breast, and superjacent skin, in one mass, towards the axilla. In this way, with great rapidity, the muscle can be left as bare as after a prolonged dissection. In most operations the fat and the glands in the armpit can be cleared out easily by using the finger and the blunt dissector. And I think that the ideal way of operating is that which enables the surgeon to remove breast, skin, pectoral fascia, lymphatics running to axilla, and the axillary fat and glands all in one bulky mass—and to do it quickly.

CANCER OF THE LIP.

To excise an epithelioma of the lip without opening up the submaxillary region, and clearing away the lymphatic glands, is to invite disappointment, for the glands contain epithelial growth almost as surely as did the labial sore; and if they are left it is but a question of time when they will involve the neck in malignant ulceration. They should be dissected away whether they are apparently involved or not.

A few years ago the operation for epithelioma of the lip was deemed of slight importance—an operation that might almost be handed over to a dresser. A thick wedge-shaped piece of the lip was removed, and the edges of the wound were neatly adjusted by sutures. And because after this the lip scarce showed a mark, everybody was satisfied. But when, later on, the glands beneath the jaw began to enlarge, to break down, and to ulcerate, satisfaction gave way to disappointment, and disappointment to remorse. That simple operation of the removal of a wedge from the lip is now, happily, a thing of the past. The modern method demands the free use of the knife, so that not only the tissue may be incised wide of the growth, but also that the whole submaxillary region may be opened up and cleaned out bare, so as to get rid of all the lymph-channels. The existence of these lymph-vessels, which linked up the cancer and the lymphatic glands, has too often been lost sight of—not only in the case of cancer of the lip, but in cancer of other regions also. The surgeon examining for the presence of enlarged lymphatic glands, and, finding none, was apt to say to himself, "It is in good time; the glands are not yet affected." And all the while epithelial seeds were steadily travelling along the delicate vessels, the fact being unrecognisable by either sight or touch. To cut out the cancer and excise the gland, and yet to leave the intermediate, full-charged lymphatic vessels, is but a slight improvement upon the old operation of removing the labial wedge. (To see the thoroughness of the modern operation for cancer of the lip, reference may be made to the *Practitioner* for last July, in which is an article by Mr. Lenthal Cheatle.)

Briefly, if the surgeon is going to excise a wedge-shaped mass, the *apex* of the wedge is to be represented by the tumour, and the sides are to spread away to such a degree that when their distant ends are joined by a cross-cut, all the loaded lymphatics, and the infected glands, may be taken away with the cancer. And in planning the incisions the surgeon is to be guided by the course of the lymphatics rather than by the desire of leaving the patient a good-looking lip. And even if the growth seem to be so adherent, or so widely spread that operation can offer the surgeon but a poor hope of his being able to get it all away, still, I would be in favour of his making the trial. It not seldom happens that when a surgeon has gone some distance with an operation, difficulties which had previously seemed well-nigh insurmountable, are completely vanquished, and the business is brought to a happy ending. It is, moreover, a great satisfaction to the patient as he looks back—even if the operation were disappointing in its results—to feel that he unflinchingly took the chance even though the odds were heavily against him.

CANCER OF THE TONGUE.

Cancer of the tongue is of great local malignancy, in that it quickly infects the lymphatics and the lymphatic glands, but it differs from other cancers in that it is inclined to leave distant organs alone. Therefore, if the local affection can be removed, root and branch, the outlook should be promising. But there is an unhappy feature in the lymphatics of the tongue which is apt to spoil the best laid surgical plans: it is that they do not observe that anatomical precision which nerves, arteries, and even veins are accustomed to follow, but, passing irregularly across the median plane, may cause enlargement of the glands on both sides of the neck, whilst the lingual ulcer, perhaps still small, remains one-sided. The result of this, as it affects modern methods, is that the surgeon is less inclined than he was formerly to remove a half of a tongue for cancer; and that in those cases in which he excises the whole tongue, he may think it desirable to clear out all the lymphatics and lymphatic glands on both sides of the neck. This, of course, adds to the gravity of the modern operation, but it renders it far more complete and promising.

No surgeon has done more towards making the operation for cancer of the tongue thorough and efficient than Mr. H. T. Butlin. Chiefly by his teaching and example, cases are now brought within the scope of practical surgery which, a few years ago, would have been hopelessly shut out, whilst the chance of obtaining a permanently good result has been greatly increased. His operation for cancer of the tongue is planned upon the same lines as those of the modern operation for cancer of the breast. That is to say, not only is the tongue removed, but the lymphatic glands, and the lymphatic vessels which run from the tongue to the glands, are also cleared away. The submental, the submaxillary, and the upper and lower carotid lymphatics are all to be dissected out, together with the submaxillary salivary gland, and the anterior triangle of the neck is to be left just as naked as the arm-pit is left after the complete operation for cancer of the breast. Needless to say, it is a trying and anxious operation, but to the surgeon who, by a longer apprenticeship, is used to operating upon tuberculous cervical glands, it offers nothing of alarm or difficulty. In some cases it may be best to perform this operation at the time that the tongue is removed by the submaxillary (Kocher's) route, but perhaps the supplemental, or, rather, the *complemental*, operation can be more conveniently and safely carried out ten days or a fortnight after the excision of the tongue. The operator need not insist upon the clearing out of the carotid regions on both sides of the neck in those cases in which the cancer is absolutely one-sided, and there is no evidence of bilateral glandular infection. But, in view of the uncertainty of the course which the lymphatics may take, he must be always on the look-out for the hint that he must carry out the two-fold clearance.

Modern methods of investigation and procedure are confining within limits of ever-increasing narrowness those chronic inflammatory conditions of the tongue which made up the clinical picture of the, so-called, pre-cancerous stage of lingual cancer. Far less time is now spent in watching their behaviour under expectant treatment, for experience has abundantly shown that their course was almost always in that direction in which the possibility of further doubt could, unhappily, no longer be indulged in.

Our forefathers would not fail to be astonished at the thoroughness with which the modern operative methods deal with cancer. To them the presence of enlarged glands was almost looked upon as a bar to direct interference, and they might likely claim that in their days patients could not have successfully passed through such serious operations. They might even go so far as to suggest that this toleration had been begotten only by the training which all and sundry patients had undergone since their time, in order to fulfil the demands now made by the surgical profession. Our reply would be, however, that probably men and women have no greater power of resistance to-day than they had 50 or 100 years ago, but that the possibilities and triumphs of modern surgery must be ascribed, to put it figuratively, to Lister having shown us the virtue which lies in the proper use of soap and water, and a nail-brush.

THE METHOD BY LOCAL STARVATION.

If a tissue does not receive its needful supplies of blood it becomes degenerate. This is seen in the wasting of the testis which follows obliteration of the spermatic artery; in the flabbiness of the muscular tissue of the heart when the coronary vessels are ossified, and in the softening which takes place in the brain when, as the result of syphilitic deposit, or of chronic arteritis, a clot has formed in the middle cerebral artery. Dr. Dawbarn, of New York, has recently founded a

method of treatment of cancer upon this well-known pathological phenomenon. He described it as the "starvation operation for malignancy in the external carotid area," and he gave an account of it in the *Journal of the American Medical Association* for September, 1904. In thus introducing it, he modestly asked that the method might be allowed the justice of a thorough study and trial, by which alone its corroboration or overthrow could be effected. He seemed to be disappointed that so few surgeons had up to that time made trial of the method. But inasmuch as it entails a great demand upon the resources of the patient, as well as upon the determination and enterprise of the surgeon who proceeds to carry it out, there is small wonder if, on looking back, he sees but few of his *confrères* following in his steps. Still, the scheme rests upon a solid foundation, and is worthy of respectful consideration amongst the modern methods of treating malignant disease.

Taking the case of advanced inoperable cancer involving the lower jaw, he excises the whole of the external carotid artery on each side, the operations being done "for safety" at different dates. He ties the inferior dental artery and its mylo-hyoid branch at the entrance to the inferior dental canal, so that there may be no chance of blood finding its way into the jaw through the generous anastomoses of the internal maxillary artery with the internal carotid. But when he comes to consider the application of "the starvation method" to malignant growths involving the orbit, he throws up his hands in despair, in view of the impractability of clearing away the entire external and internal carotid arteries on both sides. His plan for cutting off all chance of blood finding access to the malignant mass by means of anastomotic loops certainly does not err upon the side of inefficiency. Having begun to dissect away the external carotid, he follows the vessel up into the parotid gland, and injects into its distal end a fluid mixture of hard white wax and vaseline. This he calls "supplemental treatment," its object being to prevent all chance of a reversed arterial flow by plugging the superficial temporal and internal maxillary.

In his operation for resecting the external carotid he removes also the veins which present themselves to his view, thinking that their absence will be a further check upon the establishment of collateral circulation. He makes it to be clearly understood that *both* external carotids are to be similarly dealt with, allowing an interval of two or three weeks between the operations, and he urges that the vessel which is apparently the less concerned with the growth be first resected. He says that if the artery which seems the more concerned with bringing supplies to the malignant mass is first operated upon, the improvement is so great that the patient believes that enough has been done to effect his cure, and therefore declines further treatment. That subsequently the opposite artery does double work, and that the end is disappointment.

When a surgeon is examining a malignant mass in the mouth with a view to its removal, his chief thought is in connexion with the bleeding which must inevitably attend the operation. And when, as must often happen in these cases, he decides to expose the side of the neck for the preliminary cleaning away of enlarged lymphatic glands, it is but a short step to tie off the external carotid artery and thus simplify the future operation. So beneficial has the starvation method proved in certain cases of inoperable cancer, that Dawbarn hopes to gain on an average a year by its adoption. He has seen masses shrink and become so much less painful after it has been performed, that the patient has been able greatly to diminish the amount of morphine which he had previously been compelled to take. Dr. da Costa tells of a man with an extensive cancer of the face which two distinguished Philadelphian surgeons had declined to attempt to remove. In this state of hopelessness da Costa performed carotid excision on both sides. At once the growth began to shrink, and a few weeks later he was enabled to excise it. This report shows that by local starvation an apparently hopeless cancer may be brought within the range of practical surgery. The operation is, of course, a very serious one, but in such advanced cases no operation of less severity could possibly be of avail.

OPERATIONS AND STATISTICS.

In reviewing these various methods, it would ill-become the most conservative of us to condemn, or to stand upright and stiff in the temple of Æsculapius and, with self-satisfied look, express smug thanks that he is not under the influence of such restless surgical activity. In the direct treatment of cases which are otherwise hopeless, we must allow freedom of judgment and action to the honest and enterprising surgeon, and if personally unwilling to lead a forlorn hope, we must not try to hinder others whose judgment may, after all, be just as good as our own. In the world of therapeutics there are still dark tracts and continents which can be discovered only by men of imagination and energy, and possibly the Columbus or the Raleigh is to-day with us who, later on, will bring back the glad tidings that he has found the nature of cancer, and can tell us of its cure. And his discovery will not need to be made manifest by columns of figures, and percentage calculations of cures, which, like pancakes on Shrove Tuesday, have to be served up quickly, lest delay should spoil them. But it will be as the lightning under heaven. To deal with percentages as applied to human beings may be correct enough when figures are worked out in large numbers by an unemotional, disinterested actuary in the office of a Life-insurance company; but I do not look upon such calculations as of real practical value when they are compiled by a surgeon, in his evening leisure, to set forth the result of his own treatment of certain sick people. Two patients with a disease called by the same name are not of the same clinical value, nor are 20, nor 200, and the sooner that surgery discards the actuarial method in setting forth progress in connexion with the treatment of cancer the better.

Again, in an almost pardonable wish to show the results of his operative work in an attractive form, the surgeon is sometimes tempted to set up for himself a "time-limit," and then to say, "If after operation for cancer there is no sign of return in any part of the body within this period I shall count the case as *cured*." After all, this time-limit of his is but arbitrary. One surgeon may fix for himself a ten years' limit; whilst another, who is, perhaps, more sanguine, makes his a three years' limit. And if *three years*, why not *three months*? But can a surgeon who looks at facts, rather than at figures and fancies, rightly claim the three year group of operation cases, or even the ten-year group as *cures*? I think not. It may be more than ten years before that little mass of drifting cancer cells is, by chance, found cast up in some outlying area of tissue.

TREATMENT BY INJECTION.

Two years or so ago "All Paris," and a great many other people, were set talking about a new and highly attractive method of treatment of cancer which had sprung from the brain of Dr. Doyen, a surgeon of acknowledged manual dexterity and enterprise. Much was expected from it, especially as he said that his inspiration had been drawn from the work which Pasteur had done in the treatment of rabies, and Koch in the treatment of tuberculosis. In the introduction to his large book on cancer, he explains how his first observations upon what he took to be the pathogenic microbe of malignant tumours, were sent in a sealed envelope to the Académie des Sciences in 1886, and that 15 years later he named this germ *micrococcus neoformans*. That after waiting another three years he had the sealed envelope opened and its mysterious contents made known, for he was of opinion that his further experiences had fully confirmed his early hopes. And in these days of notoriety-seeking and advertisement, one can but admire the restraint which, up to that time, the French surgeon had imposed upon himself in keeping his experiences in the treatment of cancer hidden from public view.

He said that he had found certain microbes in various malignant growths, and in the cancer-juice of infected glands, and he asked if these micrococci were without importance, or if they were of the nature of a special ferment of pathogenic property, and capable of reproducing themselves. This, briefly, is a review of his position:—A microbe infects the edges of rapidly growing malignant tumours, which he calls micrococcus neoformans; this is the cause of the growth just as the bacilli are of tubercle, or as the ray-fungus is of actinomycosis. That the micrococcus may be cultivated, and that cultivations injected into certain of the lower animals may produce a growth very like cancer. That injection of the culture into persons affected with cancer sets up a reaction comparable with that following the injection of Behring's serum in the subject of tuberculosis, and, lastly, that injections of the serum in the subjects of malignant disease retard the growth of the tumour or even cause it to disappear. If this were actually so he would probably have been justified in heading one of the paragraphs of his book, in large type, *vaccination anti cancéreuse*

préventive et curative; but the study of his book fails to bring conviction.

In March last a paper was read before the Royal Medical and Chirurgical Society of London by Dr. A. Paine and Dr. D. Morgan on a series of cases treated after this method. Doyen had himself seen most of these patients and had regarded them as suitable for the treatment. No other surgical measure was used with them. In some of the cases the injection was followed by severe pain; and in some it caused alarming symptoms, with sudden, widespread vaso-motor disturbance and collapse. All of them went steadily down hill; "in none was there any improvement," and "it was decided to suspend the treatment." Further, Dr. Paine and Dr. Morgan reported that they had sought, found and cultivated the micrococcus neoformans in many cases, and having injected rats and mice with serum duly prepared from it, could obtain no local results other than those of an inflammatory nature. In no single instance did they succeed in producing any approach to a malignant tumour, nor, so far as their knowledge went, had Dr. Doyen ever succeeded in producing it.

[Mr. Owen concluded his lecture with an appeal for a more generous support of the Imperial Cancer Research Fund, and with the expression of a sincere belief in the ultimate triumph of experimental methods in the direction of the discovery of a cure for cancer, though, as he said, the knife would in all probability still be needed for the removal of the primary tumour.]

SOME OBSERVATIONS ON PARALYSES OF THE BRACHIAL PLEXUS.

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THE palsies of the upper extremity, due to a lesion of the peripheral nervous system, excepting the named branches of distribution, are classed as paralysis of the brachial plexus. Excluding the invasion of the roots by diseases of the meninges and vertebral column and pressure by new growths or aneurysm, the common causes are: (1) indirect violence, known when it occurs in adults as Erb's or Klumpke's palsy, or if at birth as Duchenne's palsy; and (2) rarer cases of neuritis. Their frequency and the serious crippling which results fully account for the renewed attention they have received since the introduction of surgical treatment. Some writers are more hopeful than others, yet the gravity of the condition is well recognised. Bruns's[1] figures are gloomy. Of 23 cases, six only recovered; four of these in adults were paralysis of the upper part and one of the lower part of the plexus, all due to indirect violence; the remaining case of recovery was a severe paralysis from pressure during anæsthesia. Of seven instances of birth palsy none recovered. During the last four years we have had under observation from time to time 30 cases. The analysis of the results is shown in the accompanying table.

The degree of utility resulting in the partial recoveries was only small, and omitting the three cases we have not been able to trace, but which, however, were all severe, we have 30 cases with 11 complete recoveries—i.e., 36 per cent. Of the traumatic cases only 30 per cent. recovered. We propose to consider some points which have been suggested by our experience and by recent work of others and which may aid in forming an opinion on prognosis and subsequent treatment.

1. *The nature of the injury.*—The spontaneous neuritis located in the region of the brachial plexus is the cause of a small and interesting group of these palsies and will not be discussed now. Two of the cases in our list were described by one of us (W. B. W.) in THE LANCET of Sept. 26th, 1903, with other unusual forms of neuritis. A third presented the symptoms of a severe lesion of the upper roots of the plexus. The patient was operated upon and the case will be mentioned later. When due to injury, lengthened duration of the cause is naturally unfavourable; five out of six cases quoted by Bruns as due to dislocation of the humerus did not recover. The only case from this cause which is included in our list made, however, an excellent and unexpected recovery. The injuries in our other cases were caused by falls on to the shoulder or by weights hitting the patient on the neck and we were not able to draw any inference from the nature of the violence as to the subsequent prognosis.

2. *The pathology of the lesion.*—Much ingenuity has been expended in seeking to discover the mechanism by which the nerve trunks are injured in birth palsy, and experiments have been made on the bodies of dead infants; the general impression is that the lesion is due to direct compression of the nerve trunks between the clavicle and transverse processes of the vertebræ or the clavicle and the first rib. It is possible that this is the cause in some of the mild cases which recover, but the figures quoted by Bruns and ourselves show that these are a minority. Clark, Prout, and Taylor[2] in a recent careful study have both by experiments and from a microscopical study of pieces of the nerve trunks removed at operation shown that laceration and tearing are the commoner result; they summarise the sequence of events as follows: "The lesions are (1) immediate, (2) remote. The immediate lesion consists in a tearing of the perineural sheath surrounding and supporting the nerve trunk and the incidental rupture of blood-vessels belonging to it. Hæmorrhage occurs into and beneath the perineural sheath. There is furthermore a severance of the nerve strands, more or less complete, depending on the severity of the case. The remote lesion is brought about and its extent determined by (*a*) the healing of the perineural sheath, (*b*) the organisation of the blood-clot, (*c*) the ultimate contraction of the cicatrix upon the nerve strands which not only prevents their regeneration but determines a pressure neuritis in those not severed upon which it may chance to impinge." They say that when pressure alone is the cause there is little pain and spontaneous recovery ensues within a year. When, however, the infant is peevish and irritable, showing signs of pain, tearing has taken place and spontaneous recovery rarely ensues. In their paper these authors give diagrams illustrating the condition found at the time of operation which clearly show the scattered distribution of the destruction. Longitudinal serial microscopical sections stained by the Weigert method show strands of scar tissue consequent on degeneration of the nerves and also bundles of intact fibres. They therefore adopt a corresponding method of operative procedure, which differs somewhat from that of other surgeons. This view of the pathogenesis of the birth palsies has also been put forward by Fieux[3] from experimental evidence, and has been adopted by Duval and Guillain[4] who state that forcible depression or elevation of the shoulder may cause rupture of the roots of the plexus, whilst less severe injury may result merely in tension or partial rupture. The irregular distribution of the injury to the trunks explains why, as in our cases, a partial but very incomplete recovery not infrequently

Paralysis in Adults due to Violence.

—	No recovery.	Partial recovery.	Complete recovery.	Not traced.
Total palsy	1	—	2	1 (very severe).
Upper arm type (Erb)... ...	6	—	4	—
Lower arm type (Klumpke)	4	—	—	—
Duchenne's Obstetrical Palsy.				
Total palsy	1	1	—	—
Upper arm type	—	2	2	2 (severe).
Lower arm type	—	—	—	—
Neuritis.				
Upper arm type	1	—	2	—
Total palsy	—	—	1	—

[1] Bruns: Neurologisches Centralblatt, 1902, S. 1040 and 1081.

[2] Clark, Prout, and Taylor: American Journal of the Medical Sciences, October, 1905.

[3] Fieux: Annales de Gynécologie, 1897.

[4] Duval and Guillain: Les Paralysies Radiculaires. Paris, 1901.

occurs. In some cases the stretching is so violent as to cause an actual tearing away of the roots either from their attachment to the plexus or from the spinal cord. When the stretching has been so forcible degenerative changes will also certainly occur in the anterior cornual cells. It is well known that simple section of a nerve is followed by a characteristic change in the nerve cell of origin; this change is, however, of the nature of a reaction, and full restitution of structure usually takes place; if, however, instead of simple section, the nerve is forcibly torn out or pulled upon severer changes follow in the nerve cell resulting in its death and are accompanied by a true secondary Wallerian degeneration in the whole of the nerve fibre. Such degenerative changes may occur even if the injury has been insufficient to cause actual avulsion of the nerve from the spinal cord. In the similar palsy of adults the pathological lesion is probably of the same nature; the exposure at the operating table shows that the plexus roots are tightly bound together by cicatricial tissue, often discoloured with old blood pigment. Palpation at the site of the lesion reveals the change which has taken place from normal nerve tissue to a hard induration. Milder forms of injury occur in which spontaneous recovery is the rule and in some the loss of conductivity of the nerves is due to pressure only, recovery following when this is removed.

3. *Symptoms of loss of function in nervous tissue independent of cause.*—The anatomical lesions we have to consider are the result of subcutaneous injury, a blow, crush, laceration, stretching or pressure and the nerve sheath and fibres are more or less ruptured and destroyed, with subsequent degeneration below the site of the lesion. Such a lesion may produce a complete or incomplete loss in the function of the damaged nerve. In mild cases pressure the result of inflammation may cause loss of conductivity, total or partial, without rupture, but if function is long abolished degeneration will occur. We have no means of diagnosing the condition of the lesion which is producing loss of function; the symptoms are identical. We cannot tell, for example, from the symptoms whether a nerve trunk has actually been torn asunder or whether it is merely crushed or pressed upon by inflammatory products which may be absorbed and spontaneous recovery ensue. We can, however, decide between complete and partial loss of conductivity, and experience will show the length of time we may wait in expectation of spontaneous recovery. The prognosis in a partial lesion is of course in general better than that of complete lesion, but the partial damage may be equally irrecoverable.

4. *Signs of complete loss of function.*—(*a*) *Alteration in sensation.*—Writers on this subject are generally agreed that the upper roots of the plexus may suffer severely without loss of sensation. Henri Grenet[5] in an extended review writes: "The absence of sensory disturbance is considered generally as being the rule." However, Raymond has established the constancy of anæsthesia in the Duchenne-Erb type, but this anæsthesia must be sought for at the onset of the symptoms, for it disappears rapidly and when its absence is noted it is because the examination was made too late." Sherren[6] says: "I have already shown complete section of the anterior primary division of the fifth cervical nerve may cause no sensory change and cases have been reported in which the fifth and sixth were divided without producing loss of sensation." A striking illustration of this fact was brought under our notice by Mr. Damer Harrisson, who in removing from the neck of a patient a very large sarcomatous growth divided a nerve trunk which caused complete paralysis of all the muscles supplied by the fifth cervical, but though the patient was examined many times no trace of loss of sensation was discovered. In another case, E. E., also showing complete muscular palsy and no anæsthesia, the plexus was exposed: the fifth and sixth anterior primary divisions were cut through at their junction and united by anastomosis with the seventh. The result was that although no further muscles were paralysed there was present a well-marked area of loss of sensation on the outer side of the arm and forearm (Fig 2).

Harris's[7] ingenious suggestion is certainly borne out by these cases. He has found that the fifth posterior root is the smallest of all the posterior roots of the plexus, being only one-half the size of the posterior root of the sixth cervical; on the other hand, its anterior root is very large. He goes on to say: "Since the circumflex and musculo-cutaneous nerves derive their fibres about equally from the fifth and sixth roots, and the deltoid, biceps and brachialis anticus receive their motor supply wholly or mainly from the fifth root, as I have shown, I am of opinion that the bundles from the fifth cervical nerve to the posterior and outer cords, destined for the circumflex and musculo-cutaneous respectively, contain the motor fibres to the deltoid, biceps, and brachialis anticus, while the bundles contributed by the sixth nerve to the circumflex and musculo-cutaneous carry mainly sensory and very few motor fibres destined for the above-mentioned muscles, together with the majority of the cutaneous sensory fibres of those two nerves."

If, however, all the roots on the lower roots of the plexus are injured, loss of sensation is present and its extent and nature give important information both as to the completeness and to the site of the lesion. The subject is complex and the reader is referred to the work of Head and Sherren.[8] It has been known for some time that when the loss of sensation is due to a lesion of the posterior roots or the trunks of a plexus it is of the dissociation type—viz., the area of insensibility to pain—a pin prick—is equal to, or greater than, that to touch—cotton-wool—whereas when the peripheral nerves of distribution are injured the field of insensibility to touch is considerably greater than that to a pin prick. Head and Sherren have shown that when the lesion is incomplete the sensation to touch first suffers, whilst a prick may be everywhere appreciated. The application of these facts is obvious; the areas supplied by the posterior roots distributed to the brachial plexus and the extent of the anæsthesia in lesions of the whole plexus and of the lower roots are well known.

We mention here only one case in which the muscular palsy and evidence of injury to the sympathetic plainly

FIG. 1.

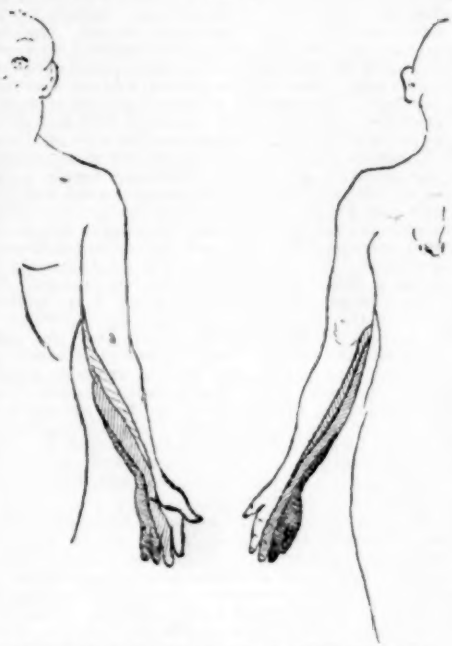

Diagram of loss of sensation in J. D., April 10th, 1904. In the band of deep shading there was loss to all forms of sensibility; in the next loss to all forms of cutaneous sensation, but deep sensibility is preserved. Beyond is a band of dissociation anæsthesia in which a prick is not recognised as such, but a light touch is perceived.

showed that the damage was situated in the eighth cervical and first dorsal spinal roots, proximal to the point of origin of the first white ramus; the resulting anæsthesia was of the dissociation type, being more extensive to prick than to light touch (see Fig. 1). This case may be contrasted with one

[5] Henri Grenet: Archives Générales de Médecine, 1900, p. 424.
[6] Sherren: THE LANCET, March 17th, 1906, p. 746.
[7] Harris: Journal of Anatomy and Physiology, 1904.
[8] Head and Sherren, Brain, 1905.

quoted by Head and Sherren in which there was a very similar area of anæsthesia, but the loss to light touch extended considerably beyond that to prick; a diagnosis of injury to the internal cutaneous and ulnar nerves was therefore made and confirmed by an exploration, when no sign of any abnormality was found in the plexus.

(*b*) *Extent of the muscular paralysis*.—Given a knowledge of the full distribution of the constituent roots of the plexus we should be able to estimate the completeness of the lesion. Whilst it is probable that each muscle is supplied by several roots we are chiefly concerned with its maximum supply, which is mainly from one root. Now in the plexuses we have to deal with a pre-fixed and post-fixed type—that is, the root supply to a muscle may vary in relation to the vertebral column, but Herringham has demonstrated that it does not vary in relation to other muscles. It is impossible to tell with which form of plexus we have to deal in any given case; the pre-fixed type is, however, the commoner. Wilfred Harris,[9] from his studies on the brachial plexus, gives the root supply as follows. Pre-fixed type: 4–5 C. Deltoid, teres minor, supraspinatus, infraspinatus. 5 C. Rhomboids, subclavius, biceps, brachialis anticus, supinator longus (brachio radialis), supinator brevis, pronator radii teres, extensores carpi radiales longior et brevior. 5–6 C. Clavicular pectoral and subscapularis. In the post-fixed plexus the order is the same, but the supply is one root lower. Thus, according to Harris, the fifth root has a more extended supply than generally accepted, sending fibres to the pronator radii teres and radial extensors of the wrist. Several of our cases support this view; the exact palsy can only be made out by careful faradic stimulation whilst a finger is kept over the tendon of insertion of the muscles being tested. In the case already mentioned in which Mr. Damer Harrisson in removing a large sarcomatous growth cut through a nerve trunk, the following muscles were paralysed and gave the full reaction of degeneration: deltoid, supra- and infra-spinatus, biceps, brachialis anticus, brachio-radialis, pronator radii teres, and radial extensors of the wrist. On extension of the wrist there was always distinct deviation to the ulnar side. The clavicular pectoral was not, however, fully paralysed. The complete absence of any loss of sensation precludes a section of the combined fifth and sixth anterior primary divisions. The same muscles were paralysed in E. E. already mentioned; the appearance of anæsthesia after the operation without any additional muscle palsy showed that the main supply of these muscles was from the fifth root (see Fig. 2). In none of the four cases in which spontaneous recovery occurred was the palsy so extensive, the radial extensors of the wrist and the pronator radii teres having escaped. The high origin of the radial extensors is also shown in cases where the lower roots are damaged. In one, J. D., with anæsthesia as shown in Fig. 1, and marked diminution in the size of the pupil and palpebral fissure, a careful analysis of the paralysis showed that the only muscles moving the wrist-joint were the two radial extensors and the flexor carpi ulnaris; the hand in extension always deviated to the radial side. A very similar condition with escape of the radial extensors was found in another case (J. M.), though here the extensores communis digitorum, indicis, and pollicis acted feebly to faradic stimulation. In none of our cases in which there was this full paralysis of the upper roots, or of the lower roots, with the "pupil phenomenon" did recovery occur.

(*c*) *Study of the electrical reactions of the muscles*.—The electrical reactions furnish, as is well known, valuable information as to prognosis. In mild cases in which faradic irritability is maintained a good prognosis may certainly be given; if absent nerve conduction is abolished. The significance of the galvanic response is more complex. Head and Sherren[10] make the important statement—(1) if the lesion is complete the response is the full reaction of degeneration, with a characteristic sluggish wave of contraction, altered polar reaction, and *diminished* excitability of the muscle. 2. If incomplete the wave of contraction is not so sluggish, though it does not attain to the very brisk response of the normal muscles; the polar reactions are usually normal and then there is an *increased* excitability of the muscle. 3 That when recovery occurs voluntary powers and restoration of the faradic irritability occur simultaneously. As these writers point out, these statements are not in full accord with generally accepted teaching.

[9] Harris, loc. cit.
[10] Head and Sherren, loc. cit.

We have not noted in a sufficiently precise manner the nature of the galvanic response in our cases to be justified in criticising their statement, but give an account of some cases illustrating our experience of the value in prognosis of the electric reactions, of the difficulty there may be in giving a correct prognosis, of the time and order in which recovery may take place, and of some points in treatment. The full reactions of degeneration as described by Head and Sherren are present in E. E. and J. D., in neither of which has any spontaneous recovery occurred in several years. On the other hand, W. D. suffered from complete paralysis of the deltoid, supra- and infra-spinatus, biceps and brachialis anticus; faradic irritability was absent, and to the constant current the contraction was not markedly sluggish, there

FIG. 2.

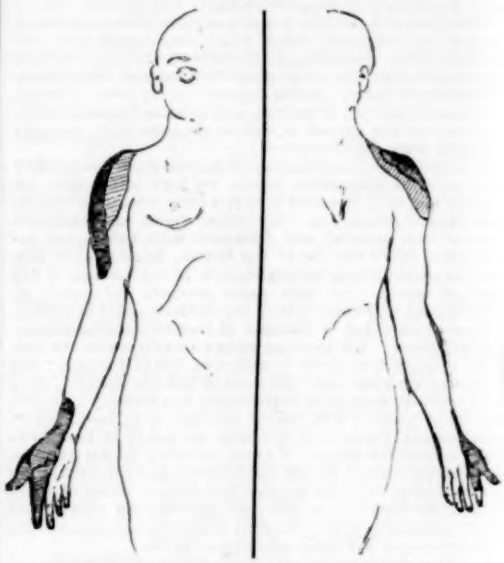

Diagram of loss of sensation in E. E. after operation. The deepest shading shows the distribution of a small zone of loss to all forms of sensibility. In the area of light shading there was dissociation anæsthesia, whilst in the whole of the shaded area there was loss of sensibility to a pin prick and to heat and cold.

was no polar reversal, and the excitability was not diminished—i.e., incomplete reaction of degeneration. No trace of recovery was noted in seven months when operation was performed. In L. now under observation the condition, confirmed on several occasions, is as follows. The injury occurred ten weeks ago. The patient shows marked wasting and paralysis of the deltoid, supra- and infra-spinatus, biceps, brachialis anticus, brachio radialis, but not of any other muscles; there is no loss of sensation. The deltoid and infra-spinatus give F. = O G. = A.C.C. > K.C.C. sluggish contraction, and diminished excitability—i.e., the complete reaction of degeneration; the other paralysed muscles F. very feeble G K.C.C. > A.C.C., fairly brisk contraction, though not nearly so sharp as in the same muscles of the opposite side. Excitability either to equal, or less than, that of corresponding healthy muscles. This indicates a much graver palsy in the deltoid and infra-spinatus, but we cannot say that spontaneous recovery will not occur.

J. P., aged 71 years. In June, 1903, the patient fell down and dislocated his shoulder and in December of the same year he consulted us on account of the resulting paralysis. The dislocation had been reduced but the joint remained stiff, the wrist and fingers were also rigid, but the elbow was fairly mobile. The only movement that could be obtained was elevation of the shoulder-joint by the trapezius and adduction by the pectoralis and some action of the serratus and rhomboids. The pupils were normal. The remaining muscles were wasted and did not react to faradism. No loss of sensation could be discerned after careful testing. The outlook seemed bad, especially on account of the patient's age. It was, however, difficult to estimate

how much of the palsy was due to actual damage of the nerves and what was the nature of that damage. Secondary arthritic atrophy was also no doubt present, yet the absence of the faradic irritability was in favour of the nervous origin of the palsy. Treatment was commenced and gave surprisingly gratifying results. The elbow was supported by a sling and the wrist hyper-extended and kept in that position by a light metal splint. After six months, during which time the limb had been kept continuously at rest, he was found to have slight voluntary power with feeble faradic reaction in all the previously paralysed muscles. He was directed to continue using the splint and to remove it each night in order to have the limb thoroughly rubbed. We now lost sight of the patient till the following September, when he returned and told us he had given up using the splint for some time. We found considerable strength in the shoulders and arm muscles and in all the extensors of the wrist and fingers, together with good faradic irritability. The wrist had remained in the hyper-extended position in which it had been originally placed and some of the immobility of the shoulder was also obviously due to fibrous adhesions. The patient was removed to hospital for further treatment and on several occasions the adhesions were gradually and carefully broken down. Constant massage, hot douches, and faradism were used. The muscles moving the shoulder-, elbow-, and wrist-joint soon became strong, but much difficulty was experienced in obtaining a sufficiently free movement of the thumb and fingers. This condition has now been much relieved; the patient has a useful limb and can approximate the fingers and thumb sufficiently to enable him to use his hand.

J. G., aged 45 years. The patient fell on the front of his shoulder and was seen by us on August 24th, 1905, a fortnight after the injury. The deltoid, spinati, brachialis anticus, biceps, and brachio-radialis were paralysed and wasted and with absence of faradic irritability; the nature of the galvanic response was not noted. No anæsthesia was present. The forearm was supported in a sling and galvanism and massage were applied to his paralysed muscles. The flexors of the forearm showed the first signs of recovery on Sept. 7th. The deltoid was the last muscle to recover; this and the return of faradic irritability were noted on Jan. 8th, 1906. We considered that voluntary power returned before the reaction to faradism.

W. H. B. was driving a wagon when a bag of meal dropped from a height of 25 feet on to his neck and knocked him on to the ground. He was first seen on May 19th, 1904, four weeks after the injury; there were wasting and paralysis of the deltoid and triceps, with loss of faradic irritability and polar reversal to the constant current. The spinati, biceps, brachialis anticus, and brachio-radialis acted very feebly to voluntary effort and to faradism. The pronator radii teres just contracted to strong faradism; there was no anæsthesia. On August 11th voluntary power had returned to the deltoid with feeble faradic irritability. The triceps was still powerless and gave the first signs of recovery on Sept. 3rd. The treatment was as in the preceding case.

Owing to the irregular distribution of the lesion it is not uncommon for a considerable recovery to take place, leaving behind a residual palsy of several muscle groups, which defies further treatment. The upper- and lower-arm type of palsy thus often follow an original total paralysis.

J. M., aged 40 years. On April 19th, 1904, the patient was knocked over by a locomotive; he was seen by us five weeks later and was found to have complete paralysis and wasting with full reaction of degeneration in the deltoid, spinati, biceps, brachialis anticus, and brachio-radialis. By August feeble voluntary power with faradic irritability had returned to the flexors of the forearms, but no recovery has occurred up to now in the deltoid or spinati muscles.

E. R., aged eight years. The patient suffered from a severe birth palsy affecting both the upper and lower roots. The patient has been under observation since birth; the treatment originally adopted was to support the forearm by a sling and to maintain the wrist in a hyper-extended position by a splint. At the end of four years the shoulder muscles and flexors of the forearm had almost completely recovered, but the sole power of moving the wrist or fingers depended on the integrity of the extensors of the thumb.

A. D.—This was another case of birth palsy at 10 years of age; recovery had occurred in the biceps and spinati, but the deltoid was extremely atrophied.

Further information of prognostic value is given by a knowledge of the points of origin of the nerves for different muscles and hence of the accessibility of the lesion to surgical treatment. The nearer the lesion is to the spinal cord the worse the prognosis; yet even recovery may occur when the anterior spinal roots are damaged, as in a case recorded by Beevor, provided, of course, that the roots are not actually severed. The damage may be situate in any point of the course of the constituent nerves from their attachment to the spinal cord and it is usually found before the nerves enter into the formation of the plexus proper. Hence the majority of the forms of paralysis are radicular in origin. The radicular portion may be for clinical purposes usefully considered as consisting of several parts according to their relation to the vertebral column: 1. The intravertebral portion containing the separate anterior and posterior roots within the dura mater. 2. The intervertebral portion. As the nerve roots leave the spinal canal they are inclosed in a separate sheath of dura mater and the spinal ganglion lies in the intervertebral foramen. It is important to note that the uppermost white ramus is given off by the first dorsal nerve immediately it escapes from the intervertebral foramen. Leaving this foramen the fifth, sixth, and seventh cervical nerves lie on the concave gutter formed by the transverse processes. The eighth cervical crosses the anterior face of the seventh transverse process and the first dorsal turns upwards in front of the neck of the first rib. 3. The extravertebral portion contains the nerves in their course behind the anterior scalene muscle and beyond the outer border of that muscle to where at levels varying in different subjects they unite to form the plexus proper. Early in this portion the fifth nerve gives off its posterior scapular branch from which are derived the nerves to the rhomboid and levator anguli scapulæ; the branch thus diminished in size runs downwards in the substance of the middle scalene muscle and is joined by a larger branch from the sixth cervical to form the posterior thoracic nerve to the serratus magnus. A smaller branch is also contributed by the seventh but the main supply of the serratus magnus is from the sixth. The suprascapular nerve is derived from the fifth cervical and its point of origin is either immediately before, or just after, this nerve unites with the sixth.

These facts give the following clinical guides to the seat of the lesion: (1) Pupillary paralysis results from an intravertebral lesion; (2) paralysis of the rhomboid, serratus magnus, or levator anguli scapulæ indicates a lesion internal to the extra-vertebral portion, situated in either the intra- or intervertebral portion; (3) paralysis of the supra- and infraspinati muscles indicates a lesion before the formation of the plexus proper. The white rami for the sympathetic, stimulation of which causes dilatation of the pupil and enlargement of the palpebral fissure, are derived from the first, second, and third dorsal anterior roots, and especially from the second. Hence, though damage to the first root causes characteristic oculo pupillary signs they may not be permanent; the use of cocaine may give some information as to the extent of damage, for if the pupil fails to dilate when a solution of this drug is instilled into the eye it is probable that the lesion has affected the second as well as the first root.

The point of origin of the posterior scapular nerve is fixed though it may be derived from the fifth and sixth or fifth, sixth, and seventh nerves, so with the nerve to the rhomboids, which is always derived from the fifth. The levator anguli scapulæ is so often supplied from the cervical plexus by the third and fourth nerves that no localising value can be attached to the absence of its paralysis. The point of origin of the suprascapular nerve is sufficiently constant to give an important localising value to its paralysis. But while we may conclude because of the paralysis of certain muscles that the lesion is above the point of origin of their nerves, the reverse is not true, for the damage caused by accident or diseases is not comparable to an experimental section of a nerve and hence some muscles may escape. It is only when the lesion is in the extra-vertebral division that surgical aid is possible.

Our conclusions as to prognosis unmodified by surgical treatment are as follows. 1. That the condition is a serious one, only from 30 to 40 per cent. terminating in useful recovery. That birth palsy of any severity less commonly results in good recovery than the corresponding condition in adults. That the cases due to a local neuritis are a good deal more favourable than when injury is the cause. 2. The pathological experience shows that the lesion is in general a severe one caused by laceration, tearing, or tension of nerve tissue, simple pressure being less

common. 3. That a complete block of conduction with a corresponding graver prognosis may be diagnosed from (*a*) a consideration of the extent and kind of anæsthesia (Head and Sherren); (*b*) a study of the electrical reactions, especially with the constant current; but that the presence of the full reaction of degeneration is compatible with complete recovery; and (*c*) attention to the extent and distribution of the muscular palsy. The order of gravity of prognosis is lesions of the spinal cord, roots, plexus proper, peripheral nerves. 4. That if spontaneous recovery happens, some signs of it are visible within seven months in adult palsy, but that in birth palsy signs of recovery may be delayed for a longer period but are complete within a year. In birth palsies partial recovery is frequent, leaving the residual paralysis to be treated surgically.

TREATMENT.

We have said that our experience is that if recovery occurs signs of this are visible within about eight months, but a considerably longer time may be required before treatment is discontinued. We think that in all cases mechanical treatment should be thoroughly persevered with before having recourse to operation. The success of mechanical or better physiological treatment depends on the nature and extent of the nerve lesion. In the case of complete division of the nerve with separation and subsequent cicatrisation recovery is all but impossible apart from operation. In less severe injuries a varying amount of power may return to the muscles. The absorption of callus, the yielding of adhesions, and the reduction of a dislocation which presses on the nerve may result in recovery from paralysis. The mechanical treatment consists in keeping the over-stretched muscles completely relaxed. This relaxation must be continued without intermission for some months. The object of this treatment is to antagonise the functioning muscles and to prevent the degeneration of muscular tissue which rapidly occurs when it becomes elongated by posture. We hold strongly the opinion that where paralysis has lasted several weeks there is little chance of complete recovery unless the elongated muscles are relaxed, and that where this procedure is omitted very valuable service has been withheld from the patient. Two cases of infantile paralysis will serve as an illustration. In both of these cases the muscles of the upper arm and shoulder had been paralysed for over two years, while those governing the hand acted normally. A diamond-shaped flap of skin was removed from the bend of the elbow sufficiently long to fix the elbow acutely. In this position the hand could be utilised whereas with the arm extended it was useless. In two patients, aged three and four years respectively, in less than six months after the operation we found power returning to the flexors of the elbow and in less than 12 months the restoration was complete. In neither case was there any recovery in the muscles of the shoulder girdle.

When the flexors of the forearm, therefore, are paralysed, as in the ordinary upper arm type, the wrist should be drawn towards the neck by a sling in order to keep the flexors of the elbow relaxed. If the extensors of the wrist are paralysed the joint should be kept hyper-extended in order completely to relax the extensors and stretch the flexors, thus aiding the restoration of muscular balance. This is done by means of a splint, the angle of which may be altered and which is in contact with the forearm and the palm of the hand. The muscles should be systematically and energetically massaged. In the case of the poor who cannot afford the masseur a small guttapercha ball transfixed by a skewer and placed in a handle will render good service. Massage thus applied with the wrist hyper-extended is as useful as it is futile when the muscles are allowed to remain in their elongated state. Care must be taken not to bandage the arm to the splint anywhere but over tendon, otherwise pressure on the muscular tissue is harmful. The constant current appropriately administered is sometimes useful. If the early treatment has been efficient and *no improvement* takes place in seven or eight months an operation may be advised if the clinical signs indicate that the lesion is accessible. In dealing with birth palsies Kennedy recommends operation if there is no recovery within two or three months. We think that is too early and a much longer period is given by Clark, Taylor, and Prout—up to a year or more. With appropriate mechanical treatment a case which has remained untreated and paralysed for many months may show rapid signs of improvement.

Eight years ago a man was brought to us from Wales, having fractured his arm and paralysed his musculo-spiral nerve 18 months previously. His history was that for 12 months he had not the least power of extension in his fingers but that after that he noticed some slight return of power. On examining him we noted the typical wrist-drop and only when we completely flexed his wrist to render more tense his extensors could he extend his finger-tips an inch. With hyper-extension of the wrist voluntary movement soon increased and in five months the splint was discarded. Many years ago, in attempting to reduce a dislocation of the hip, we injured the sciatic nerve in a man, aged 30 years. For ten months the tissue remained quite paralysed, recovery commencing then in the hamstrings and taking two years in completion of the other groups. He had persistently refused operative interference. These cases are adduced in evidence of how protracted, and yet complete, recovery may be and how it may be expedited by appropriate mechanical device.

Bowlby[11] says, and in this Sherren agrees, that no case of secondary suture has been successful if undertaken as long as four years after the injury. Kennedy,[12] however, states that success may be achieved after many years. In two cases of birth palsy related by Clark, Taylor, and Prout voluntary power is stated to have returned in three and five months after suture in children, aged ten and eight years respectively. Of their seven cases, two died within a few days of the operation though the wounds were aseptic. In the remaining five some voluntary power had returned at the time of writing. Kennedy's successful cases are well known and Robert Campbell mentioned that he had operated on six with three recoveries. In all these the lesion was exsected and end-to-end junction made. Kennedy united the distal end of the fifth and sixth anterior primary division to the proximal three nerves—viz., suprascapular and the anterior and posterior branches which go to form the outer and posterior cords respectively. Clark, Taylor, and Prout found that in some cases it is possible to, at the time of operation, localise the lesion to a part only of one of the nerve trunks, and in their case (Case 6) the fifth cervical anterior primary division and the outer part only of the combined trunk were resected. In the birth palsies where partial recovery is not infrequent inspection and testing may thus render it possible to avoid unnecessary division. Secondary suture of the brachial plexus in adults does not appear to have been often performed. Thorburn[13] reports a case of secondary suture of the whole plexus seven months after an injury and in which some recovery occurred. Sherren[14] gives two cases of his own and gives details in one—viz., suture of the upper and middle trunks nine weeks after division, improvement in sensation was first noticed in 182 weeks and voluntary power in the biceps in 182 weeks, but not till 333 weeks did all the previously paralysed muscles react to faradism. The very great length of time before recovery occurs is to be noted and contrasts sharply with the comparatively early appearance of voluntary movement after operation in birth palsy.

Thus of six cases operated upon by Kennedy, Clark, Taylor, and Prout, in which the ages were two months, 14 years, two months, three months, ten years, and eight years, voluntary power is recorded as having first appeared respectively in two and three-quarter months, one and a half years, two and three-quarter months, four months, three months, and five months. In certain cases resection is not required; it may be obvious that the palsy is caused by pressure, as by invasion from bone injuries to the humerus. Here it is only necessary to free the trunk from inflammatory tissue. The importance of being able to distinguish by palpation between a cicatricial induration and atrophied nerve tissue may again be emphasised. Nerve anastomosis has been carried out by Low and Harris[15] in place of end-to-end junction. These writers consider that though the junction of the fifth and sixth anterior primary divisions be found surrounded by scar tissue, yet that the paralysis is due only to damage to the fifth trunk and electrical stimulation at the operation may elicit powerful contractions of muscles, the pectoralis, latissimus and triceps, from the sixth trunk and yield no response from the fifth: hence if anastomosis is equally successful as end-to-end junction it is advisable to avoid dividing a functioning nerve. Further, they have shown that in the fifth primary

[11] Bowlby: THE LANCET, July 28th, 1902, p. 198.
[12] Kennedy: Brit. Med. Jour., 1904, vol. ii., p. 1067.
[13] Thorburn: Ibid., 1900, vol. i., p. 1075.
[14] Sherren: Loc. cit.
[15] Low and Harris: Brit. Med. Jour., 1903, vol. ii., p. 1135.

division the bundles carrying the fibres for the circumflex and musculo-cutaneous nerves can be easily separated from each other and electric stimulation demonstrates which bundle is functioning. In a case of infantile paralysis in which the deltoid and spinati muscles were paralysed, but the biceps, brachialis anticus and supinator longus were acting, they in this manner separated the bundle in the fifth primary division, cut the degenerated part and anastomosed it with the sixth cervical anterior primary division. This case was recently shown with marked recovery of power at the Clinical Society of London, three years after the operation.

Anastomosis is of course the only operation in infantile spinal paralysis. E. J., aged two years and two months, suffered from infantile palsy when one year old, which left him with wasting and paralysis of the deltoid, supra- and infra-spinatus, and the flexors of the forearm. The muscles did not react to faradism but gave a fair response to the constant current. In October, 1905, the plexus was exposed; the fifth primary division was found to be much wasted, of about one-third the size of the sixth, and gave no response to electrical stimulation. The sixth looked normal and stimulation caused strong contraction of the serratus and pectoralis major. The fifth division was then cut and its distal end placed in a longitudinal division made with the sixth. Healing took place by primary union. No alteration in power was noticed by August, 1906.

W. D. J.—This was a case of neuritis with the symptoms mentioned in the text. On August 16th, 1905, the plexus was exposed without much difficulty. A rather delicate cicatrix surrounded the junction of the fifth and sixth primary division; this was closed up and the three distal branches were clearly exposed. Electrical stimulation of the fifth gave a negative response to deltoid, spinati muscles, biceps and brachialis anticus, but a feeble contraction of the supinator longus and radial extensors. The sixth gave a vigorous contraction of triceps, pectorales, and latissimus dorsi. The fifth trunk was divided longitudinally into two unequal halves; the smaller part gave a feeble contraction of the supinator longus, the larger gave no response. This was accordingly divided and anastomosed with the sixth. On August 31st, 1906, our note reads: "The biceps, brachialis anticus, and supinator longus show distinct recovery and the reaction to faradism is present; to galvanism there is a brisk contraction with K.C.C. > A.C.C. The posterior fibres of the deltoid react both to F. and G. K.C.C. > A.C.C. contraction fairly brisk. The anterior fibres do not react to faradism and give a feeble response to galvanism. A.C.C. > K.C.C. contraction sluggish. The infra- and supra-spinati are powerless, but slight external rotation of the humerus can be performed to a moderate extent by the posterior fibres of the deltoid. Appears to have slight loss of epicritic sensation over the outer preaxial border and complains of a slight burning sensation."

In the case of E. E. with symptoms described in the text, operation performed on Sept. 14th, 1904, was not undertaken till four years after the injury. On exposing the plexus, a very dense fibrous matting was found uniting the upper roots and their branches. It was impossible fully to clear this away and the scar appeared too long to risk an exsection extending for at least two and a half centimetres. Electrical stimulation, as far as this could be ascertained, gave no response in the distal branches, but the seventh primary division gave strong extension of the elbow and wrist and lateral rotation of the humerus. The nerves beyond the cicatrix were therefore cut and anastomosed with the seventh. On August 31st, 1906, our note reads: "There is no improvement in muscular power; full reaction of degeneration present. Sensation: can feel pin-prick everywhere, but loss of touch to cotton-wool in the original area of anæsthesia—i.e., return of protopathic sensation."

From a survey of the literature one learns that by almost every method of junction success has been attained. No one surgeon can speak authoritatively from his limited experience of operations upon man, and operations upon animals are more suggestive than convincing. Clearly, where it is possible, end-to-end junction is the ideal method. In operations upon the brachial plexus, however, this form of junction is only occasionally available, as the cicatricial surroundings increase the difficulty of stretching the nerves, and any pull upon the nerve makes the suture less effective. Failing end-to end suture one must be guided, as Spitzy says, by the condition we find.

Nerve transplantation, nerve anastomosis, and nerve crossing as suggested by Sherren is a satisfactory classification and it will be well to exclude the term "nerve grafting" from the nomenclature. Sherren in an exhaustive article discusses the relative merits of transplantation of human nerve (homo-transplantation) and the transplantation of nerves from animals (hetero-transplantation). The results are much better in auto- and homo-transplantation than in hetero-transplantation. Of eight cases, only three were reported sufficiently long after operation to admit of recovery. Of these, two completely recovered and one was no better 17 months after operation, but of 22 instances of hetero-transplantation 16 were reported at a sufficient interval after operation to admit of some recovery. By making every liberal allowance only six cases out of 16 could be reported as successes. The clinical results are therefore against hetero-transplantation and this bears out the observation of Merzbacher,[17] Forssman,[18] and others that transplantation of nerves in animals of the same species was more successful than when animals of a different species were employed.

In nerve anastomosis it is endeavoured to bring the axis cylinders into end-to-end contact with some of those of sound nerve. Sherren, excluding the cases in which the operation was performed on the facial nerve, collected 25 examples. Twelve were allowed a sufficient time for some recovery to occur. Of these 12 cases only two were failures, some improvement taking place in all the others. Nerve crossing has been employed mainly in facial paralysis, and of eight cases reported voluntary power in the facial was restored. Until further operations have been performed it will be difficult accurately to generalise as to the method of election, but in operations on the brachial plexus we are scarcely justified in doing more than (*a*) end-to-end junction; (*b*) nerve anastomosis; and (*c*) auto- or homo-implantation. Spitzy,[19] who has had perhaps the largest operative experience, lays the greatest stress upon technique as being of more importance than the particular form of junction effected, but he favours the imbedding of the pathological into the healthy nerve. He prefers the slit to be longitudinal and recommends that it should be tied longitudinally and loosely. Asepsis should be rigid, and assistants called on to register electric reactions at the time of operation should attend to all precautions. The nerves should be most gently handled and the stitching should be sufficiently accurate to prevent the ingress of fibrous tissue between the axis cylinders. Where, from extensive dissection in fibrous tissue, adhesions may be feared, the nerve ends can be surrounded by sterile foil. When the operation has been completed and the wound healed massage and the postural shortening of lengthened muscles should be practised.

WATER GAS, CARBURETTED WATER GAS, AND CARBON MONOXIDE POISONING.

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(Concluded from p. 1582.)

RATIONALE OF WATER GAS POISONING.

AIR which contains minute percentage proportions of carbon monoxide, as, for example, 0·05 per cent., does not seem to produce when inhaled for some hours any visible ill-effect, chiefly owing to the inhibitory influence which oxygen in combination with the hæmoglobin of the blood exercises upon the union of carbon monoxide with the hæmoglobin. At the same time, however, while no direct ill-effects may be apparent from short inconsecutive periods of inhalation of air so contaminated, it must not be concluded that constant living in such an atmosphere may be done with impunity. Corfield and other writers have reached the conclusion that probably more depreciation of health is

[16] Sherren: Edinburgh Medical Journal, October, 1906.
[17] Merzbacher: Neurologisches Centralblatt, 1905.
[18] Forssman: Beiträge zur Allgemeinen Pathologie und Pathologischen Anatomie, 1900, S. 407.
[19] Spitzy: Zeitschrift für Orthopädische Chirurgie, Bände xiii., xiv., and xv.; Archiv für Orthopädische und Unfallchirurgie, Band iii., Heft 1.

produced by minute leakages of coal gas in dwellings than by so-called sewer air or sewer gas. My experience tends in a like direction.

The compound formed, carboxy-hæmoglobin, is a stable compound, and it is the formation of this compound which entitles us to pronounce carbon monoxide a cumulative poison. But the inhibitory influence of oxygen upon its union with the colouring matter of the blood has, after all, a very limited operation; indeed, it is largely overcome, or entirely fails, when the percentage amount of carbon monoxide in the air is increased, because we find the carbon monoxide supplanting the oxygen in the blood and after the formation of the carboxy-hæmoglobin renders the oxygen unable to dissociate it from the hæmoglobin. But a remarkable fact is observable where by experiment carbon monoxide is administered so that it may be as fully absorbed by the blood as it can be, and that is that there still remains a proportion of oxygen, amounting from one sixth to one-fifth, in combination with the hæmoglobin. The important question which arises in the treatment of cases of carbon monoxide poisoning is, How may this gas which is in combination with the hæmoglobin be got rid of or dissociated? Experience has proved that this is not easy. Donders[1] asserted that carboxy-hæmoglobin is capable of being dissociated, and Gaglio[2] has proved, what experience has likewise demonstrated, that carbon monoxide is not oxidised within the animal body.

Haldane's account of experiments on himself with inhalations of air containing from 0·044 to 0·046 per cent. of carbon monoxide shows that little serious effect was apparent even at the end of four hours' inhalation, the only noteworthy symptoms being slight hyperpnœa and slight palpitation of the heart on running upstairs. But when the percentage was increased to 0·21 per cent., as in another experiment, toxic symptoms became much more marked. After 34 minutes' inhalation slight feelings of fulness and throbbing of the head were perceived. After 43 minutes he felt "abnormal"; there were slight hyperpnœa and marked intracranial throbbing. After 54 minutes the same feelings continued, but in addition there was some interference with vision, with some giddiness. After 71 minutes, when the experiment was stopped, vision had become dim, the limbs weak, movements being unsteady and uncertain, so that he had some difficulty in rising and walking without assistance. Six minutes after he had been breathing fresh air he staggered in walking and nearly fell, was very uncertain in his gait, and grasped uncertainly at objects for support. Vision was so indistinct even then that he could not perceive details of objects looked at. After 13 minutes he inhaled oxygen. "The effect," says he, "seemed to be distinct. After three or four seconds everything seemed to clear up suddenly and I was able to walk steadily up and down the room carrying the bag. I breathed the oxygen for two minutes, and, on ceasing, continued to walk, and soon again became unsteady and confused." Twenty-two minutes after stopping the inhalation of the carbonised air, and notwithstanding the immediately beneficial effects of oxygen inhalation, his walking still remained unsteady and vision and hearing were both defective. "At this point," he adds, "I again began to breathe from the oxygen-bag, and the effect seemed distinct. On stopping the oxygen, I again began to feel confused after about a minute of walking. On trying to run vision rapidly became dim, and movements uncertain." During the whole of the evening of the day of experiment he suffered from headache, not accompanied, however, by nausea or loss of appepite. The headache persisted slightly during the succeeding day.[3] From these experiments, personally borne and described by this skilled observer, it is quite clear that dissociation of the carbon monoxide from the hæmoglobin did not take place during the periods of inhalation of oxygen, as shown by the recurrence of the symptoms. All that presumably did happen was that the corpuscles which were able to absorb and carry oxygen took up that gas in more than normal amounts for the time being, but with evanescent effect only. This subject has been discussed because of the important practical bearing it has relative to the treatment of those asphyxiated by carburetted water gas or by any combination of gases of which carbon monoxide is one of the principal constituents.

[1] Pflüger's Archiv, vol. v., p. 24.
[2] Archiv für Experimentelle Pathologie, vol. xxii., p. 236.
[3] Journal of Physiology, vol. xviii., pp. 201 and 430.

CASES OF CARBURETTED WATER GAS POISONING.

Professor Lorrain Smith[4] has recorded a series of cases of poisoning by illuminating gas which occurred in Belfast in the years 1898 and 1899. The gas supplied to that city is a mixture of ordinary coal gas with about 40 per cent. of carburetted water gas. The mixture contains about 16 per cent. of carbon monoxide. The body of the first victim showed externally the effects of inhalation of carbon monoxide, the lips being pink in colour, as well as the skin of the dependent parts of the body. A large amount of froth was present about the mouth and nostrils. The intestines showed on internal examination a diffused scarlet tint. A few drops of the blood allowed to fall into water exhibited the characteristic pink tint of carboxy-hæmoglobin, and when examined by the carmine method it was found to be saturated to the extent of 83 per cent. with carbon monoxide.

In the second occurrence three persons were involved—viz., a maid-servant and two children. The maid and one of the children, aged four years, were dead when found, the other child being alive and recovering after treatment. Post-mortem examination of the body of the maid showed that the lips and conjunctivæ were pale; there was froth at the mouth and nostrils; there was a bluish-pink lividity of the dependent parts of the body; and the stomach and intestines were pale pink in colour. The blood showed saturation by carbon monoxide to the extent of 76·6 per cent. The body of the child exhibited similar appearances, but the degree of saturation was only 69·5 per cent. A young man, who slept in a room adjoining that in which the above persons slept, but which was separated from it by a lath and plaster partition, suffered also from the effects of the gas. He, however, was able to move about when found, but 24 hours afterwards had no recollection of the occurrence, or even of his having been taken to hospital.

In the third occurrence two cases were involved, and both persons died. One was an old woman of 72 years of age and the other was a young child. The blood of the woman showed carbon monoxide saturation to 57 per cent., and that of the child 5 per cent.

In a public work in Glasgow, a man applying for temporary employment was set to work to free from "scale" and clean the interior of a retort. He started operations about 6 30 A.M. When the signal for breakfast was given at 9 A.M. he did not emerge from the retort, whereupon the foreman, thinking that this man did not hear the ordinary signal, rapped loudly on the outside of the retort with a hammer and left for breakfast. On his return he was told that the man had not yet come out of the retort, when search was made inside. The man was found lying dead, his naked lamp burning not far from where he lay. The day following I made a post-mortem examination of the body for the Crown. It was that of a vigorous, well-nourished man, about middle life. Externally, over nearly the whole front aspect, it bore the characteristic rosy-pink colouration of carbon monoxide poisoning, and internally the usual pink suffusion of the intestines and arterial hue of the blood. Spectroscopic examination of the blood proved the presence of carboxy-hæmoglobin and further testing showed a high percentage (75 per cent.) of saturation. Evidence given at the Fatal Accidents Inquiry showed that this retort was part of a producer-gas plant, but it was stated that at the time the man was employed at work in it it was not in connexion with the rest of the plant. A verdict of "Suffocation from gas fumes" was returned by the jury.

Dr. W. J. Thompson of Dublin, in the record of a case of carbon monoxide poisoning from coal fumes, mentions incidentally that he has had also under his care two cases of poisoning by Dublin illuminating gas "which, as is well known, is charged with carburetted water gas sometimes to the extent of 16 per cent., whereas in ordinary coal gas the percentage is rarely more than 6 per cent."[5] These figures are probably intended to express percentages of carbon monoxide, since according to the Government Return Dublin adds 47 per cent. of carburetted water gas to its ordinary product.

Cases of coal gas asphyxia.—It has been my lot to see a relatively large number of cases of coal gas poisoning but of these I shall only draw upon certain typical cases to illustrate different points.

CASE 1.—This occurrence involved the death of seven

[4] Brit. Med. Jour., vol. i., 1899, p. 780.
[5] Medical Press, vol. i., 1905, p. 426.

persons. On Jan. 12th, 1895, I was called as police surgeon by the police to attend at a house in which it was feared some mishap had occurred, as the occupants were not astir as usual and had not been seen all the morning, and especially because an oppressive odour of coal gas was perceptible in the lobby or passage leading to the one apartment therein. This apartment, which was situated in the sunk or area flat of a four-storeyed tenement, and which with propriety might be termed a cellar dwelling, was inhabited by a husband, wife, and five children of varying ages. The door was burst open by the police. At once an overwhelming atmosphere of coal gas met us as we tried to enter. A constable rushed into the apartment and succeeded in rapidly opening the one window of the room and thereafter in making his escape. After a short interval, ventilation through the apartment having in the meantime been established between the door and the window, we entered. The occupants were all found in bed. They occupied three different beds. A very hasty examination showed that there were seven persons present: the father, mother, and five children whose ages ranged apparently from 12 years downwards. Of these, the father only showed signs of life. He was quickly removed to the infirmary. The bodies of the dead wife and children bore different appearances externally. That of the mother showed a pale face with a slightly bluish pallor of the lips, but there were no rosy-pink patches externally on the body. That of a boy, aged 12 years, showed a pale placid face with no lividity, but the tongue, slightly bluish in tint, protruded for about half an inch beyond the line of the teeth. That of a girl, aged 10 years, exhibited the same facial conditions. Bile-stained marks were found on the right cheek and on the pillow, as if from vomiting. That of another girl, aged six years, whose face was generally like those of the others, except that there was mucous froth at the mouth and nostrils, showed like bodily appearances. The bodies of the others were similar. The appearances of the father were as follow. He was deeply comatose and insensible to all forms of stimulation. The body was cold to the touch. There were clammy sweat on the face and mucous froth at the mouth. The pupils were markedly contracted. Respirations were regular in rhythm and deep in character. The action of the heart was feeble. The skin of the body generally was pale and cold to touch. On arrival at the hospital he was almost pulseless, was breathing heavily, expiration being puffing in character. The pupils were contracted and did not respond to light, the conjunctival reflex being absent. Froth was collected about the lips. The body was cold, although the temperature registered was 99·6° F. After measures had been used to restore the body heat and after the body had become warm profuse perspiration broke out all over the body, but especially on its upper part. The pulse improved in quality and the breathing calmed down. After inhalation of oxygen, the cyanosis disappeared largely from the face. About one and a half hours after admission the conjunctival reflex returned, as did also the mobility of the pupil, which enlarged to medium size and showed capability to contract to light. He could now be roused to a partial degree of consciousness—that is, when the conjunctiva was touched he moaned and turned away his head. This, however, was the nearest approach to consciousness which he exhibited while he lived. In the evening the breathing again became laboured and the cyanosis of the face became more marked. The extraordinary muscles of respiration were now brought strongly into action, and during expiration there was considerable puffing of the cheeks. The pulse still remained good. The body was bathed in perspiration. Physical examination of the chest now revealed dulness at the base of the left lung, but on auscultation only wheezing and crackling râles were heard at the left base and also at the right base. Froth still continued to form and collect about the lips. Oxygen inhalations were continued from time to time and hypodermic injections of sulphuric ether were also periodically administered. He lingered in this condition until the evening of the day following his admission, when he died. His temperature, which on admission was 99·6°, rose that same night to 101·6°, fell by next morning to normal, but again rose to that on admission, and was normal at the time of death. Post-mortem examination of the body revealed dark, thick, fluid blood throughout the venous system; the internal organs were healthy. The chambers of the heart contained thick, glutinous, dark fluid blood. The base of the right lung showed passive hyperæmia, as did also that of the left, but not so marked. The blood under the microscope was seen not to form rouleaux. A noteworthy feature in the apartment in which these deaths took place was that a paraffin lamp was found burning on a low shelf not far from the beds in which the bodies were lying and the appearance of its flame did not betoken any insufficiency of oxygen. A similar fact is recorded by Mr. Jones[6] of an apartment in which were found two persons asphyxiated from coal gas, one being dead and the other alive and recovering later. Another interesting feature of the foregoing case above narrated was that there was no gas-supply laid into the house—indeed, there was no gas connexion of any kind, so that the source of the gas must have been outside of the building. For some time before the occurrence severe frost had prevailed and for some distance downward the earth was frost-bound, a condition apt to produce fracture of pipes. Examination of the pipes in the ground in the vicinity of the building revealed the fact that a gas-pipe of one and a half inches in diameter had been fractured, probably by the frost, and that the escaping gas had found its way into the basement apartment in question through the earth and through cracks and seams in the walls.

CASE 2.—Six days later, on Jan. 18th, I was called to deal with another series of coal-gas poisonings involving five persons, but happily without loss of life. This was probably due to the fact that the father happened to be awakened during the night by sounds which on rising to investigate he found to be caused by his children retching and vomiting. In the room in which they slept he found an almost overpowering odour of gas. The children were partly unconscious. His wife was also in a dazed condition. He promptly removed them from the house. Two persons living in the flat above were also affected. They chanced to be awakened by the noises produced by the excited movements of the persons below. In a few days all of them had quite recovered. In this case also the cause of the mischief was a fractured pipe.

CASE 3.—In November, 1900, I was asked by the late Dr. J. Finlayson, physician to the Glasgow Western Infirmary, to see with him a patient who had been admitted to his wards alleged to be suffered from coal-gas asphyxiation. She was then deeply comatose. Towards evening she developed Cheyne-Stokes breathing, the apnœic interval lasting for 11 seconds. I examined her blood by the micro-spectroscope and found undoubted evidence of carboxy-hæmoglobin. She recovered in a few days.

In addition to these cases I have seen others, and throughout medical literature cases have from time to time been recorded. Pettenkofer, in a paper on Coal-gas Poisoning in the journal *Nord und Süd*, January, 1884, gives several examples of deaths occurring in persons in apartments from leakages or fractures of gas-pipes in the ground outside the dwellings.[7] At Glossop in January, 1884, four persons met their death from coal gas, the cause being a fractured pipe situated two inches below the surface of the ground and about six feet from the house. The pipe was supposed to have been broken by a loaded cart which had passed over it the day before. The gas gained entrance into the house by an untrapped slop-drain pipe.[8] On March 11th, 1905, seven persons were overwhelmed by coal gas in a house near Motherwell, Lanarkshire, of whom one was found dead and two others were not expected to recover. It was believed that the escape of gas was due to fracture of a pipe in the earth caused by subsidence from mining operations—a not infrequent occurrence in that neighbourhood.

It ought to be noted in passing that in every large gas-supply an enormous annual loss by leakage occurs from underground pipes, as well as from defective house-pipes and fittings. According to Dr. Bayley[9] the normal average leakage of gas in the cities of New York State per annum per mile of mains was 225,000 cubic feet, and in London, based on a statement by the Board of Underwriters, it amounted to 1748 millions of cubic feet per annum over the whole area of supply.

CASES OF CARBON MONOXIDE POISONING FROM SOURCES OTHER THAN COAL GAS.

CASE 1.—The following case is in several respects of unusual interest, and although it had no relation to water

[6] Brit. Med. Jour., vol. ii., 1896, p. 1443.
[7] Populäre Vorträge, vol. iii., p. 87; Brit. Med. Jour., vol. i., 1884, p. 822.
[8] Brit. Med. Jour., vol. i., 1884, p. 121.
[9] Vide note 4, supra.

gas the gas inhaled was rich in carbon monoxide. In an inhabited street in the east end of Glasgow is a lime-burning work consisting of three kilns, one, at least, of which abutted within a few inches of the brick-built gable end of a newly-erected tenement of three storeys in height. On each flat there were three occupancies, which were tenanted by different families. During the night of Nov. 30th, 1899, the husband of the family occupying the two apartments on the ground floor nearest the gable wall returned from his work about 2 A.M. On entering his house he perceived what he described as a sickening smell. He found his wife and three children sick in bed, the children being partly unconscious. They were removed to a neighbouring house where they stayed over the night. Next morning they were practically well. Their neighbours in the flat above them, however, had not been seen since the night before and as vigorous rappings at their door elicited no response the police were sent for, who, procuring a ladder, entered the house by a window. It was then discovered that a woman and her two children were lying dead in the bed of the back apartment, and that a man—a lodger—who was occupying the bed in the front apartment was deeply unconscious but still alive. He was at once removed to the infirmary. As medico-legal examiner in Crown cases I made post-mortem examinations of the bodies of the woman and her two children. The children were aged four years and one and a half years respectively. The examination revealed the woman to be about eight months pregnant of twin children. Externally her body bore the rosy pink colour on the left side of the face, the extensor surfaces of the arms, and on the inner and front aspects of the thighs in the neighbourhood of the genitals. Internally, with the exception of the contents of the right ventricle of the heart, which consisted of a few dark-coloured soft coagula, the blood of the body was markedly cherry-red in colour. There was no organic disease found. The bodies of the two children, which were found lying beside that of their mother, bore generally the same external appearances and therefore were not dissected. I examined the blood of the woman spectroscopically and by other tests and found unmistakeable evidence of carboxy-hæmoglobin, the degree of saturation being about 70 per cent.

The following is the history of the man who was removed from the house to the infirmary, for the notes of which I am indebted to Dr. G. S. Middleton, physician to the infirmary. The patient was admitted at 9.45 A.M. on Dec. 1st, 1899, in an unconscious condition, reported to be suffering from coal-gas poisoning. When admitted, the face was livid and the veins of the neck were very prominent. The pulse could scarcely, if at all, be felt, and the breath sounds were very feeble. Artificial respiration had been carried out by the ambulance attendant from the time he saw the patient until his admission into the ward and it was sustained until the oxygen apparatus was prepared. Hot bottles were put to the feet, which were cold to the hand, and a large poultice of linseed and mustard was applied over the region of the heart and upper chest. Oxygen inhalations were given for fully 20 minutes. The effect of the oxygen was purely momentary; the colour of the face improved slightly, but the improvement did not persist when the oxygen was withdrawn. There was a rotatory spasm of the arms, the rotation being inwards, with the hands clenched. The knee-jerks were greatly exaggerated. Ankle clonus was easily elicited and on nolding the wrist there was a clonus as marked as at the ankle. The breathing was stertorous and there was some spasm of the muscles of the thorax. The diaphragm seemed to move normally and yet almost no air seemed to enter the lungs. The jaws were clenched tightly. The eyelids opened and closed rhythmically with inspiration and expiration. The pupils did not react to light and were quite insensible to touch. After he had been under treatment for about half an hour he could be roused by pinching to the extent of opening his eyes and removing himself from the source of irritation. Sulphuric ether was given hypodermically in repeated doses of 20 minims. Two pints of saline solution (one drachm of sodium chloride to 20 ounces of water boiled and cooled to 100° F.) were injected by means of a needle attached to a syphon arrangement into the left gluteal region and both axillæ, but without much appreciable beneficial effect. It was only when the median basilic vein of the left arm was opened and three ounces of blood had been withdrawn that the pulse became fuller and less feeble. The effect of venesection was very striking. The quantity of blood withdrawn was small, for it ceased to flow after three ounces had been obtained, but improvement followed immediately. Poultices were kept periodically applied to the chest till 1 P.M., when the patient began to perspire; and by 1.30 P.M. perspiration had become profuse all over the body, and the lividity of the face had much lessened. The pupils now responded to light and the patient appeared sensible to touch. At 2 P.M. he uttered a monosyllable or two in reply to a question put to him, but the meaning of what he said could not be made out. From that hour onwards he seemed to improve. He became gradually more conscious, although he remained somnolent all the afternoon and evening, but was rousable. At 11.30 P.M. 22 ounces of urine were drawn off by catheter. The urine was pale in colour, of specific gravity 1022, and contained a trace of albumin, but no blood or sugar. Granular tube-casts were, however, found. During the night he twice passed urine involuntarily in bed. He was very restless and slept little. He was still stupid and could give little account of himself beyond his name. The note in the clinical record of Dec. 4th is that the patient had now quite recovered consciousness, but said that he did not remember anything that happened on the day previous to admission. He was dismissed well a week after.

Among other causes of carbon-monoxide poisoning must be mentioned fumes from stoves, burning or smouldering refuse coal-heaps, gas geysers or gas heaters, and the manufacture of nickel carbonyl. The first is by no means infrequent in France from flueless or other stoves in which charcoal or coke is used and has given rise to accidental as well as suicidal deaths. One of the most noteworthy cases of this is the death of the famous novelist, M. Zola, the facts of whose death may be recited briefly as follows. Against the return of M. and Madame Zola to their house in Paris a fire of "patent fuel," blocks of compressed charcoal, had been lit in their bedroom during the day to warm the room. The servant observed that the chimney did not draw, the cause, found later, being fallen mortar. The servant, after opening the window of the room, left the fire to go out. It appears, however, to have smouldered all night, as next morning the grate was found to be still hot. That morning, the servant receiving no answer to his knocking at the bed-room door, broke in the door. M. Zola was found lying dead on the floor and his wife lay unconscious on her bed. Madame Zola recovered and was then able to state that she awoke in the night feeling ill, and, though faint, was able to go to her dressing-room. On returning she spoke to her husband who also seemed ill. Later she heard him rise from bed and fall on the floor. She tried to call for assistance but lost consciousness. Two dogs who were in the room escaped with their lives. M. Girard examined samples of blood from the body of M. Zola, as well as from Madame Zola and one of the dogs, and found conclusive evidence of the presence of carbon monoxide. From the whole circumstances it was thought that the proportion of this gas in the air of the room was probably never higher than about 0·3 per cent.[10] In this connexion, also, may be mentioned ignited charcoal-dust carriage foot warmers as a source of fatal poisonings.[11]

Another not uncommon type of the poisonous effects of gas fumes is as embodied in the following case. The victim was a male cook in one of the river Liffey dredgers. He retired at night as usual for sleep into the skipper's room and, after entering, he closed and bolted the door of the room, which had a cubic capacity of 952 feet. The only source of ventilation was by this door; consequently by his act he cut off his source of air-supply. The room was warmed by a small stove, and the time of the year being November and the weather cold he put on the fire a large lump of steam coal. Not being astir at his usual time in the morning, and no reply being elicited after loud and continued knocking, the door was burst open. He was found lying on the floor deeply insensible but was removed to hospital. On admission, the colour of his face and body was "dusky, dark, and greyish"; his breathing was short, shallow, and stertorous, the respirations numbering 24 per minute; the surface of the body was very cold, although the temperature per rectum was 99·6° F., and the pulse was thready, small, easily compressible, and could not be counted. The heart sounds were almost inaudible; the superficial reflexes, including the conjunctival, were lost; the pupils were irregular, the right being slightly dilated, the left contracted, and both insensitive to light; there was well-marked rigidity of all the muscles of the body, notably those of the arms; and the

[10] Brit. Med. Jour., vol. ii., 1902, p. 1082.
[11] THE LANCET, Feb. 12th, 1889, p. 357.

blood when drawn off had the bright red cherry-like colour of carbon-monoxide poisoning. He regained consciousness the same afternoon and thereafter quickly recovered. The treatment employed by Dr. Thompson, who records the case,[12] was the continuous use of inhalation of oxygen, artificial respiration, hypodermic injections of ether, strychnine and digitalin, with electricity along the phrenic nerves and spine.

Another source of fatal poisoning is from the use of gas geysers or gas-heaters used in bath-rooms. Many cases have already been recorded. Recently another case occurred in Glasgow, the victim being a vigorous young adult who was fond of bathing. To enable him to enjoy this he himself fitted a gas-heater in his bath-room which was a small and poorly ventilated apartment. He was found dead in the bath, his head resting against the side of the bath above the level of the water.

There are also certain industrial sources from which carbon-monoxide poisoning may arise—viz., in ironworks where ammonia plant is installed and in the manufacture of nickel carbonyl. Of the former of these, the following is an illustrative example. At 2 A.M. of March 20th, 1895, a workman employed at the Clyde Ironworks was found lying in front of one of the flues of the ammonia plant apparently dead. He was only insensible, however; but his face was ghastly pale, his eyes were staring and glassy, his pupils were fixed and dilated, his breathing was quiet and shallow, and his pulse was slow but fairly strong. He could not be roused. After treatment he began to show signs of animation and to speak incoherently. Soon thereafter he was attacked with clonic convulsions, which lasted for about two hours, the muscles of the left side being chiefly affected. About 6 A.M. he was improving, but was suddenly attacked with tetanic contractions of the muscles, chiefly the extensors of the trunk and the flexors of the limbs. Under the influence of chloroform these abated but reappeared when the effects of the drug wore off. Oxygen by inhalation was then administered but with no success. These tetanic contractions became less violent, the patient the while remaining semi-comatose. This condition of semi-coma lasted for ten days. On the fifteenth day after the accident he was suddenly seized with acute mania, which required him to be placed under restraint. Thereafter he again became comatose. Ten days later he was conscious enough to put out his tongue when asked. By May 22nd his lucid intervals had become more frequent and lasted longer. Thereafter he gradually, though slowly, improved. The gas which gave rise to his symptoms was, on analysis, found to contain over 25 per cent. of carbon monoxide. Dr. A. Scott, who records the case,[13] mentions that in a neighbouring works there had been no fewer than six fatal cases from the same cause, and gives references to two other cases in which dementia followed.

Regarding the second of the above-mentioned industrial causes it is important to note that nickel carbonyl ($Ni(CO)_4$), which is a compound of nickel with carbon monoxide, is extremely poisonous. It is a clear liquid of considerable refractive power, of a specific gravity of 1.3185 at 17° C., which is soluble in alcohol, benzene, chloroform, and olive oil, and which evaporates on exposure to the air, giving off carbon-monoxide gas. McKendrick and Snodgrass[14] have investigated its physiological action after injection, and have demonstrated that it is highly toxic, not only when injected hypodermically, but also when inhaled as a constituent of the atmosphere. Their experiments indicate that a percentage less than 0·5 was dangerous to life. In 1903 two deaths in Mond's Chemical Works, Clydach, were attributed to this substance. Both men had been exposed to the vapour of nickel carbonyl. Dr. J. Jones reported that there had been 26 cases of slight poisoning among workmen under his care during the previous summer. Dr. F. W. Tunnicliffe, who examined the internal organs of one of the men, came to the conclusion that death was due to the substance already named. The post-mortem signs pointed to death by asphyxia, œdema of the lungs being present. An examination of the brain of one of the deceased men was made by Dr. F. W. Mott, who found capillary hæmorrhages throughout the substance of the organ, as well as chromolytic changes in the nerve cells of the medulla and pons, especially of the cardio-respiratory centres.[15]

Perhaps the most common of the industrial causes of fatal accidents by carbon monoxide is coal-mining, from choke-damp, smouldering fires in pits of coal or woodwork in places where the ventilation is imperfect, or following the use, in similar places, of the higher explosives; but this forms so large a branch of the subject that it cannot now be more than mentioned.

CHRONIC POISONING BY CARBON MONOXIDE.

After, or concurrent with, an asphyxiating attack of poisoning by carbon monoxide there may be unexpected mental symptoms. Cases have from time to time been recorded where the impairment of the mental faculties has continued for months and sometimes for years after. Dr. Scott[16] has recorded one case in which a workman engaged in connexion with the ammonia-saving plant of an ironworks, and who was found lying insensible in the close proximity to one of the flues, developed marked mental symptoms which remained for some weeks afterwards; and in his paper he speaks of a second case in which a workman, who had suffered in somewhat the same way, remained weak-minded for two years afterwards in a condition of partial dementia. Such cases are explicable on the ground of the hæmorrhagic lesions which are commonly found in the brains of those who have died from inhalation of the gas, and doubtless the incidence of such symptoms, their degree and character when present, and their duration, must largely depend on the amount and distribution of these capillary hæmorrhages.

But there is another form of chronic poisoning due to more or less constant exposure to relatively minute proportions of this gas, which is very insidious in its onset and the symptoms of which may fail to awaken suspicion as to their true cause. These symptoms may be grouped generally under the designation of a lowered condition of general health, accompanied by more or less anæmia and malnutrition. It is well known that workers in atmospheres in which, by reason of imperfect means of lighting by daylight, artificial lighting by coal gas has to be resorted to, sooner or later manifest a sallow and ill-nourished appearance, accompanied by loss of flesh, want of animation, and by a superinduced desire for stimulants, sometimes entirely foreign to the inclination of the individual. It is quite true that this line of symptoms has not as yet been proved to be solely due to the presence in the air of such places of minute proportions of carbon monoxide, but there is good ground for believing that it is largely due to this gas. It is difficult to conceive that exposure over long periods to this gas should not leave a distinct disturbance of the physiological functions of the blood, and, by consequence, disturbance of nutrition of the tissues and organs. After acute poisoning probably one organ or another of the body remains most crippled. In some cases dementia of the type exhibiting deficiency of mind rather than aberration of intellect has followed. The patient seems to lack nerve and mental power, becomes apathetic, and, occasionally, weak-minded. Such a condition may well follow minute cerebral hæmorrhages into the brain substance with sequent sclerotic changes. Nor is this condition an evanescent one; in some cases it has, indeed, lasted for years. Therapeutic measures, moreover, do not seem to expedite recovery from this chain of symptoms; the most they seem able to effect is to restore and maintain some degree of physical health.

The effect of the inhalation of carbon monoxide from defective apparatus on the health of those exposed has already formed the basis of an action at law in Waters and Wife *v.* The Brighton and Hove General Gas Company, which was tried in November, 1902, before Mr. Justice Lawrance in the King's Bench Division, London. It appears that in December, 1901, the defendants contracted with the plaintiffs to supply and fix in his house certain gas stoves, to connect certain pipes therein with a pipe conveying gas, and to do all necessary things to finish the work. It was further alleged that the work was done so negligently and unskilfully that, during the night of Dec. 23rd and the morning of Dec. 24th, gas escaped into the bedroom in which the plaintiffs slept "and thereby poisoned the plaintiffs and made them both ill"; that the effects on the male plaintiff were poisoning of the blood, congestion of the lung, headache, vomiting, fever, affection of the throat, and lassitude, and that for a fortnight he was unable to follow his avocation. It was further averred that the poisoning had permanently weakened the right lung of the male plaintiff, and rendered

[12] Loc. cit.
[13] THE LANCET, Jan. 26th, 1895, p. 217.
[14] Transactions of the Philosophical Society of Glasgow.
[15] Brit. Med. Jour., vol. i., 1903, pp. 214, 467.
[16] THE LANCET, Jan. 26th, 1895, p. 217.

it liable to attacks of congestion. It was admitted for the defendants that water gas was used by the company to the extent of 31 per cent. (It will be observed from the Board of Trade Returns for 1904 that the percentage used in that year was 38 per cent.) The plaintiffs succeeded in proving negligence. In his evidence the male plaintiff stated that when he retired to bed with his wife on the night in question he perceived an unpleasant smell in the room which he thought, however, to be due to the varnish with which the stove had been painted. He turned off the gas from the stove and retired. About 7 A.M. the following morning he remembered trying to reach the washstand in the room from the floor, on which he had fallen, as he felt sick and inclined to vomit, which he did subsequently; and that he also felt very weak and ill. About 9.30 A.M. he walked with difficulty to the offices of the gas company, about a mile from his house, to make complaint. His wife averred in the witness-stand that she awoke on the morning of the 24th feeling sick and ill; observed her husband lying by her side; that she thought him at first to be dead, but she awoke him, and on his rising he fell on the floor. Four days afterwards, still feeling ill and unable to go to business, the male plaintiff sought medical advice. The medical man who was called gave evidence that on the date in question (28th) he found the plaintiff with a temperature of 101·6° F. and a very feeble pulse and complaining of headache, giddiness, cough, and hæmoptysis; that examination of the lungs showed congestion of the right lung, and that the sputum on examination did not show the presence of the tubercle bacillus; and that the urine contained a trace of albumin. The medical defence for the company was to the effect that, while the lung dulness was admitted, it was not likely to have been caused by carbon monoxide poisoning. A verdict for both plaintiffs was returned.[17]

The only comment that need be made on this case is, that while it is neither typical of acute nor of chronic poisoning, it illustrates the crippling effect which exposure to carbon monoxide has upon some organ of the body.

TREATMENT IN GAS POISONING.

Whether the kind of the gas be producer gas, water gas, carburetted water gas, or ordinary coal gas, the problem to be solved in the treatment of those deeply comatose from inhalation of the gas is how to overcome the association of the carbon monoxide with the hæmoglobin and to restore the oxygen-carrying function of the red corpuscles. It will be obvious that the only difference in action of these gases is one of time, due to the differences in percentage of carbon monoxide which they respectively contain; or, in other words, because of the much less percentage amount of carbon monoxide in coal gas it takes a longer time to produce an equal degree of saturation than in the case of the others. Even in coal gas inhalation, however, when the person is found to be deeply unconscious, and particularly when ordinary remedial efforts prove unavailing, it is the toxic effects of the carbon monoxide which have to be combated. The first indication in treatment is to remove the sufferer, under suitable precautions, into the open air. By reason of the action of carbon monoxide on the vaso-motor nerves producing coldness of the surface of the body these suitable precautions ought to consist of measures calculated to restore surface warmth, which is of considerable importance. As I have said elsewhere,[18] artificial respiration will only be necessary if voluntary breathing be embarrassed or irregular. Inhalations of oxygen should be given. If in spite of these measures no sign of recovery appears, bleeding and injections of saline solution or transfusion of live human blood should be carried out. Farrah, in a paper read before the Philadelphia Pathological Society in November, 1899, stated that he found experimentally on dogs that transfusion gave good results, the transfused blood being obtained from the carotid artery of a healthy dog and allowed to pass into the jugular vein, while saline solutions were only of temporary value, and hydrogen peroxide injected intravenously and subcutaneously yielded no beneficial effect. In carbon monoxide poisoning removal into the open air is not so urgently called for, although plenty of fresh air is necessary. The difficulty is to obtain dissociation of the gas from the hæmoglobin even by the administration of oxygen, because of the diminished capability of the red corpuscles to absorb and carry oxygen. While artificial respiration, oxygen inhalations, and measures for the restoration of body heat ought to be persevered in until, at least, the animal heat is restored, should no further improvement be manifested, bleeding and transfusion should be resorted to.

Glasgow.

[17] Journal of State Medicine, vol. x, No. 12, 1902, p. 729.

[18] Text-book of Medical Jurisprudence, Toxicology, and Public Health, p. 463.

SOME CASES OF ACUTE LEUKÆMIA ADMITTED INTO ST. GEORGE'S HOSPITAL BETWEEN 1895 AND 1905.

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CASES of acute leukæmia are still of such rarity that their publication demands no justification. While acting as house physician at St. George's Hospital I was fortunate enough to see three cases of this interesting disease. The patients were all admitted during the months of August and September, 1905, and within a fortnight of one another. On searching the hospital records during the previous ten years for similar cases I found notes of two which I include in this series. The cases were under the care of the following physicians:—Case 1, Dr. W. Ewart; Cases 2, 3, and 4, Dr. H. D. Rolleston and Dr. J. S. Collier; Case 5, Dr. A. Latham. I am greatly indebted to these gentlemen for permission to publish them, and for many valuable suggestions regarding them.

CASE 1.—The patient, a female, aged 18 years, was admitted as an in-patient on Dec. 20th, 1898. Three months before admission she had noticed a swelling about the angle of the left side of the jaw which was followed by an enlargement of the glands in the anterior and posterior triangles on both sides of the neck. The glands in the right groin also became enlarged but subsequently this enlargement subsided. One month before admission to hospital both tonsils had been removed and several teeth had been extracted from the left lower jaw, presumably because they were carious. The patient had been short of breath since the onset of illness, but had never noticed any œdema. During the week before admission there had been several attacks of hæmoptysis and hæmatemesis, about one pint of blood being lost in all. The patient had become very deaf during the last few days and three days before coming to the hospital had first noticed the appearance of purpuric spots on the limbs and the trunk. There was no history of diarrhœa or melæna or of traumatism. The patient's own history and that of her family contained nothing of importance. The catamenia had been absent for the preceding three months.

On admission the patient was found to be fairly well nourished but anæmic. There were general puffiness of the eyelids and the face and faucial anæmia; the tonsils were somewhat swollen, the right one having a bleeding surface. No stomatitis was present. There was a copious eruption of petechial spots on the upper and lower limbs as well as a few ecchymoses of considerable size. There was some staining of the left lower eyelid and a few purpuric spots were noticed on the trunk and the neck. All the lymphatic glands of the neck were enlarged, but for the most part they were discrete. Under the angle and the ramus of the lower jaw on the left side was a collection of glands of the size of a hen's egg. The glands in the axillæ were palpable but quite small. The antecubital glands were not felt. One gland in the right groin was as large as a walnut; the others were but slightly enlarged. The heart sounds were normal. The pulse was 120 and soft and regular. Over the upper part of the sternum there was increased dulness; otherwise the lungs appeared to be normal. The respirations were 28. On examining the abdomen some epigastric tenderness was manifest but no enlargement of the abdominal glands was made out. The edge of the spleen was palpable on deep inspiration under the left costal arch. The liver dulness was increased downwards one finger's breadth, but the edge was not felt. There was no tenderness of the bones. The urine contained blood and a slight amount of albumin. The bowels were constipated.

An examination of the blood was made one day after admission when the white corpuscles were found to number 53,000 per cubic millimetre and the red corpuscles 3,860,000 per cubic millimetre. A differential examination of 1000 white cells gave: polynuclear cells, 25; eosinophile cells, 4; and lymphocytes, 971. The lymphocytes were of varying shapes; the majority, about 90 per cent. of the white cells,

were of the larger variety—viz., from 16 to 18 μ; a few were larger and some belonged to the ordinary small variety. In the examination of several slides only one myelocyte was seen.

The patient gradually became weaker. There was considerable oozing of blood from the mouth; the expectoration contained more blood than this oozing would account for, and the urine contained blood and much uric acid. The motions were loose and contained a little blood. There was much extravasation of blood under the conjunctiva and in the lower eyelid on both sides. The temperature varied from 100° to 102° F. On Dec. 26th the patient vomited and also had profuse hæmoptysis. On the following day she died.

At the post-mortem examination the body was found to be well nourished and to present numerous ecchymoses, especially on the eyelids and the legs. Immediately beneath the sternum was a pyriform mass which was merely connected to it by means of loose connective tissue. It lay with its broad end upwards nearly touching the lower border of the thyroid body, its narrow end being on the surface of the pericardium to which it was adherent. It occupied therefore the normal position of the thymus body. Microscopically the mass was composed of small round-celled growth which in places was undergoing degeneration and stained poorly. The appearances, according to Dr. Rolleston, were compatible with simple hyperplasia of the organ. The lungs were œdematous and showed intra-alveolar hæmorrhages throughout. The larynx, the trachea, the bronchi, and the bronchial glands were normal. The heart was pale and flabby, but was not enlarged; it presented many subpericardial petechiæ. The walls of the abdomen were lax. The liver was fatty and the gall-bladder was empty. The pancreas was normal. The kidneys were pale and were said to contain growth (in all probability leukæmic infiltration). The spleen was large and soft. The stomach and intestines showed numerous petechial hæmorrhages but were otherwise normal. The submaxillary glands were enlarged, as were also those in front of, and behind, the sterno-mastoid and in each groin. The medulla of the long bones was red and in places gelatinous.

CASE 2.—The patient, a girl, aged seven years, was admitted on Feb. 17th, 1903, complaining of debility. Her family history was quite good and of no importance. Her personal history was as follows. She was a full-time child and had been breast-fed until she was 18 months old; she had always bruised very quickly but had not been subject to nose-bleeding. She had suffered from mumps three or four years previously. The present attack had begun apparently on Feb. 8th (nine days before admission). The patient had been perfectly well before that date, but on waking on the morning of the 8th her mother noticed that her mouth was drawn to one side, that she did not seem able to open her mouth, and that liquid food dropped out. Her speech was indistinct and she was a little pale and seemed drowsy. On the following day she had a slight fall from a toy horse and to her mother's surprise "came out over bruises on her legs." The shortness of breath and pallor became worse and the child looked so ill that she was taken to the hospital.

On admission the child was found to be pale and tired-looking, with dark rings under her eyes. The mucous membranes were anæmic and the sclerotics were exceedingly blue. There were some bruises on both legs and on the right forearm. The tongue was clean, but pale and moist. The teeth were defective in front; there was no bleeding from the gums. The tonsils were enlarged, especially the right one, in which the crypts were larger. The colour of the tonsils was of a brownish tinge, with some dark-red (hæmorrhagic) patches on the surface. Both anterior and posterior cervical glands were slightly enlarged, discrete, and freely moveable. There were also small glands to be felt in the left and right axilla and both groins. The chest moved well and evenly. Nothing abnormal was detected in the lungs. The heart was slightly enlarged. The apex beat was in the fifth space, a quarter of an inch outside the nipple line. The upper limit of dulness extended into the second left space. The heart's action was forcible. There were a hæmic murmur and an accentuated pulmonary second sound in the second left space. The abdomen was soft and moved well on respiration. The liver apparently was not enlarged. The spleen was enlarged, its lower margin, which was soft and rounded, descending about three inches below the costal margin on inspiration. No other abnormality was found. As noted above, the legs were bruised. There was no tenderness or œdema. The urine was unpigmented, with a deposit of white lithates and a specific gravity of 1030; it was acid in reaction. There was no albumin. A differential count of the blood gave the following results: White corpuscles: polymorphonuclear cells, 3·3 per cent.; hyaline cells, 1·8 per cent.; and lymphocytes, 95 per cent. Total number of leucocytes, 60,000 per cubic millimetre; total number of red corpuscles, 2,320,000 per cubic millimetre; and hæmoglobin, 30 per cent. There was slight poikilocytosis, and one normoblast was seen in the preparation from which the differential count was made. The lymphocytes were for the most part very large and exhibited much irregularity of form. On Feb. 19th it was noted that the gums had been bleeding slightly. The child looked rather more comfortable. On the 27th no improvement in the patient's condition was noted. She vomited once on this day. The tonsils were as before. On March 10th the child was taken home, her condition being no better. Subsequent inquiries have elicited the fact that the child died on March 14th, four days after leaving the hospital. There was no post-mortem examination.

CASE 3.—The patient, a youth, aged 17 years, was admitted to hospital on August 24th, 1905, complaining of "weakness and pain in the back." The past medical history of the case showed nothing of great interest. The patient had had measles in his boyhood and otorrhœa when he was six years old. He had never had scarlet fever or rheumatic fever. He had, his father said, always had a good home and had been well fed. Both parents were alive and well. The brothers and sisters, too, had been quite well so far as the patient could remember. The present illness had commenced four weeks previously with pains in the back and across the shoulders while the patient was at work. He was obliged to give up and had to be taken home, and was in bed for three days from that time. He was then under medical treatment for a fortnight and though not in bed was confined to the house. He had not suffered from vomiting, headaches, or shortness of breath since the onset of the illness. He said that he had suffered from epistaxis during the last four days on blowing his nose. He had not so far as he knew passed blood in his motions. He spat up blood on the day of admission for the first time. He had been "white for some time." On August 21st he had first noticed a rash which began on his neck and then spread over his body. He complained that his eyesight had been getting worse of late.

On admission the patient was found to be an anæmic-looking youth. He lay comfortably in bed without showing any signs of distress. On the skin was a purpuric eruption consisting of discrete small, purple hæmorrhages which were most abundant on the neck, the flanks, the forearms, and the legs. The chest was well formed and moved well on respiration. The lungs presented no abnormality. The apex beat of the heart was not felt; presumably it was in the fifth space. There was no enlargement of the cardiac areas and the sounds were normal. The muscular walls of the abdomen were lax. The spleen was distinctly enlarged, reaching from the eighth rib above in the mid-axillary line and extending as far as the umbilicus below; it was not tender. The liver extended from the sixth rib above but owing to tenderness it was impossible to make out its lower limit. The dulness extended about one finger's breadth below the costal margin. The joints were unaffected and the bones were not tender. The glands along the anterior border of the sterno-mastoids in the supra-clavicular fossæ and in the groins were enlarged, discrete, and hard. The tongue was red and moist, the teeth were good, and the gums were not inflamed. The temperature was 101° F. The urine showed a specific gravity of 1008; it was pale and alkaline but no albumin was present. On the morning of the 26th the patient complained of soreness of the gums. There were one or two bleeding spots to be seen along the front just above the upper incisor teeth. The temperature rose at night to 101° but in the morning it fell to 99·8°. The four-hourly chart showed the extreme variations at 6 A.M. and 6 P.M. The breath was somewhat foul. On the 28th the gums had become a great deal more swollen and they bled rather freely all along the alveolar border. The tonsils were injected; the left was swollen and the patient complained of pain on swallowing. The temperature had been steadily rising and was now 102° at night, with remissions of one degree each morning. A blood-film which was taken showed a large quantity of lymphocytes, especially of the large variety. On Sept. 1st, in spite of

strict antiseptic precautions, the mouth had become considerably worse and was now in a foul state. Blood oozed from all parts of the gums and both tonsils were now greatly swollen and extremely tender. The patient appeared to be in great pain and said that he was unable to get his breath. An examination of the blood gave the following results: lymphocytes, 95 per cent.; polymorphonuclear cells, 2½ per cent.; myelocytes, 2½ per cent.; and eosinophiles, ½ per cent. A rough count taken on the 2nd showed the red corpuscles to number 3,200,000 per cubic millimetre and the white corpuscles 50,000 per cubic millimetre. The patient became rapidly worse. Both submaxillary glands were enlarged and acutely tender, and the patient had great difficulty in taking any food. Delirium set in on the night of the 3rd and was again present on the next evening. The patient collapsed somewhat suddenly early on the morning of the 5th and died a few hours afterwards.

At the post-mortem examination the following condition was found. The body was well nourished but markedly anæmic, and there were a few purpuric patches on the dorsum of the feet and round the ankles. There were a few adhesions at the base of the left lung (recent). The surfaces of both lungs showed small scattered ecchymoses. The right lung weighed 12 ounces and the left 19 ounces. The upper lobe of the left lung was emphysematous and the lower lobe was in addition œdematous, while at the extreme base was a patch of consolidation due to hypostatic pneumonia. The right lung was in much the same condition except that there was no consolidation. The intertracheal glands were slightly enlarged and showed old tuberculous changes. The larynx and trachea were normal. The thyroid gland was healthy but pale. The pericardium contained an excess of clear fluid and there was a large purpuric patch on the parietal wall. The weight of the heart was nine ounces. The left ventricle showed a few small subendocardial ecchymoses and was slightly dilated. The heart muscle was pale and flabby, but all the valves were healthy. The aorta showed distinct patches of early atheroma. The walls of the abdomen were flabby. The peritoneum was healthy. The liver, which weighed five pounds, was enlarged and pale and showed a cloudy swelling. The gall-bladder, hepatic ducts, and vessels were normal. The spleen weighed 13 ounces and was enlarged, congested, and somewhat soft. There was present a small patch of perisplenitis. The other abdominal viscera were normal. The tongue was discoloured. The right tonsil was gangrenous and the gums were sloughing. The œsophagus was pale and showed a few petechiæ at the lower part. The stomach showed many ecchymoses on its mucous coat. The intestines were catarrhal throughout with scattered petechial hæmorrhages here and there, while the Peyer's patches and solitary follicles were congested. The first part of the jejunum was œdematous and at the ileo-cæcal valve was a sloughing ulcer. The glands were slightly enlarged throughout, the most noticeable being the cervical, the mesenteric, and the intertracheal.

CASE 4.—The patient, a female, aged 23 years, was brought to hospital on Sept. 1st, 1905, complaining of sore mouth and throat. The past medical history of the patient included the usual diseases of childhood and ptomaine poisoning three years previously. The family history was good. The father had been drowned but the mother, aged 61 years, was alive and well. The patient had been married for three years and had one child, who was now eight months old. The present illness had commenced eight days previously, when the patient felt severe pain on swallowing and her mouth became sore. Previously to this the patient had, she said, felt weakly since the birth of her child and had been pale for some time. Otherwise she had had no symptoms. She was a very anæmic woman. On the 2nd she lay comfortably in bed without dyspnœa, but was unable to breathe through her nose and kept her mouth continually open. The chest moved well on respiration, its wall was covered with enlarged veins in front, and the breasts were doughy and secreting milk. There was tenderness at the base of the sternum and down the right side. Nothing abnormal was detected in the lungs. The apex beat of the heart was in the fifth left space half an inch interior to the nipple line. The area of cardiac dulness was not increased. There was no murmur at the base or at the apex. The pulse-rate was 104 and of low tension, the wave being badly sustained. The walls of the abdomen were lax and there were marked lineæ albicantes. The liver was not palpable, did not seem to be enlarged, and was not tender. The spleen was just palpable below the costal margin. It was not tender. The uterus was not felt. The tongue was dry and was covered with blood. There were, however, no bleeding points on its surface. The teeth were in a fair condition but were covered with sordes and dry blood. The right tonsil was enlarged but was not suppurating and there was no false membrane to be seen. The gums of both the upper and the lower jaw were sloughing and bleeding; there was also an ulcerated patch on the inner surface of the right cheek. There was no bone actually exposed. The breath was very foul. There was no œdema of the legs. The knee-jerks were delayed and were rather increased. The plantar reflex was increased, being flexor in type. Ankle-clonus was present on both sides. The temperature was 102·8° F. The urine was acid and gave a specific gravity of 1020; it contained albumin in small quantity. The patient had been getting worse from the time of admission. On the 4th the mouth was more foul and the right tonsil was sloughing away. The temperature rose at night to 103°. There was on this morning a petechial rash scattered over the lower part of the abdomen and the upper part of the thighs. On the 5th a blood count showed the total number of red corpuscles to be 1,968,000 per cubic millimetre, while the white corpuscles numbered 60,000 per cubic millimetre. The hæmoglobin amounted to 45 per cent. A differential count showed: lymphocytes, 96 per cent.; polymorphonuclear cells, 3·5 per cent.; mononuclear cells, 1·5 per cent.; and eosinophiles, *nil*. The red corpuscles were ringed and of poor quality. There was some poikilocytosis present but no nucleated red cells could be seen. The white cells consisted chiefly of a quantity of large lymphocytes with lightly staining nuclei.

A post-mortem examination was made 52 hours after death. The body was well nourished. There were marked purpuric spots on the abdomen and breasts and less marked ones on the arms and the neck. In the thorax there were no adhesions. Numerous petechial hæmorrhages were present on both layers of the pleuræ. The right lung weighed 16 ounces and the left 16 ounces. Both were pale and showed emphysema in the usual sites. The lower lobes were bright red on the surface from petechial hæmorrhages. On section both lungs were found to be pale and œdematous. The trachea, the bronchial tubes, and the larynx were normal. The pericardium was flecked with petechiæ. The heart weighed 10 ounces and was studded throughout with petechial hæmorrhages, but otherwise it was normal. The peritoneum showed hæmorrhages. The liver was enlarged and showed recent perihepatitis and many petechiæ. On section it was seen to be pale and exceedingly flabby. There was no lardaceous reaction. The spleen was enlarged and the surface was roughened by recent perisplenitis and mottled with red and yellow areas. Except for hæmorrhages on the surface and in the pelvis of the left kidney the other abdominal viscera were healthy. There was marked gangrenous stomatitis with gangrene of the right tonsil. The stomach showed catarrh and petechiæ and the intestines contained altered blood. The breasts contained milk and the genitals were healthy.

CASE 5.—The patient, a man aged 47 years, was admitted on Sept. 15th, 1905, complaining of great loss of weight and shortness of breath. The family history was good and showed no indication of tubercle or of malignant disease. The present attack the patient indefinitely dated as beginning some 12 months previously with indigestion which he himself treated with various patent medicines. Since that time he had become progressively weaker and his breathing had become shorter. He had had a slight cough during this time with expectoration of small quantities of yellowish phlegm, but had had no hæmoptysis. His appetite had been good throughout. He described himself as a moderate drinker, but admitted to taking rum with his coffee in the morning and Scotch whisky during the day. He had had no previous illnesses. Syphilis and gonorrhœa were denied. The bowels had been loose for the previous month or so. The patient's general appearance was as follows. He was a tuberculous-looking man, with dark hair, blue eyes, a pink and white complexion, and was obviously anæmic and generally emaciated. The tongue was pale, flabby, and moist. In the throat there was a hard, irregular mass raised above the surface of the left tonsil which spread forwards on the gum behind the last molar tooth. It was ulcerating in the centre. The patient said that this started as a sore-throat about a month before. The teeth were dirty and decayed. The pulse was 100 and of small volume and the arteries were thickened,

the respirations were 20, and the temperature was 100° F. The chest walls were found to be very wasted in all parts. The heart was normal in size and position but its action was weak, though regular. There were no adventitious sounds. The lungs expanded fairly on inspiration. At both bases behind were fine crepitant râles and the breathing throughout was harsh. The abdomen was distended; there was a small umbilical hernia and numerous veins showed through the skin. The liver was enlarged and hard, the lower border reaching as far as the umbilicus. The spleen was just palpable below the costal margin; it was soft and flabby. The urine was dark, acid, had a specific gravity of 1014, and contained blood. The submaxillary and anterior and posterior cervical glands were enlarged and discrete. There were also a few hard glands to be felt in both groins. The extremities were wasted. There was no tenderness of the long bones. On the 21st a blood film was taken and it showed an immense quantity of lymphocytes of the large variety. A blood count was made which showed the red cells to number 2,460,000 per cubic millimetre. There were slight poikilocytosis and polychromatophilia and normoblasts were present in small numbers. The differential count showed: lymphocytes (mostly large), 96·5 per cent.; polymorphonuclear cells, 2·5 per cent.; mononuclear cells, 0·5 per cent.; mast cells, 0 5 per cent.; and eosinophilic cells, *nil*. On the 26th an intravenous injection of formalin in normal saline solution (1 in 5000) was given, 40 cubic centimetres of the solution being used. Similar injections were given daily, with two interruptions of a day, until Oct. 10th. Two subsequent blood counts showed a great rise in the total quantity of white cells; on the former reckoning there were 776,000 per cubic millimetre and on the latter 449 000 per cubic millimetre (Oct. 3rd and 24th). The differential counts on the same dates were 96 per cent and 92 per cent of lymphocytes respectively. The hæmoglobin was between 40 and 50 per cent. throughout. During the whole of his time in hospital the patient's temperature varied between 98° and 99° in the morning and 101° and 103° at night. The oral growth spread rapidly and greatly inconvenienced mastication and deglutition. On Nov. 2nd the patient vomited frequently and on the following day signs of general peritonitis were noticed; he gradually got weaker and weaker and died on the 5th.

A post-mortem examination was made on Nov. 6th. Considerable wasting throughout the body was present. The ankles and feet were œdematous and a small hernia protruded from the umbilicus. There was much thickening as well as many dense adhesions between the two layers of the pleuræ. Both lungs were affected with miliary tuberculosis in the upper lobes which for the main part was of quite recent date. The lower lobes showed marked hypostatic congestion with œdema. The larynx, the thyroid gland, and the trachea were normal. The thymus gland was not in evidence. The infra-tracheal glands were swollen, œdematous, and slightly inflamed, while the cervical glands were greatly enlarged, though not tough on section, discrete, but tending to break down near the left tonsil. The pericardium was thickened and adherent to both pleuræ and contained four ounces of clear straw coloured fluid. The heart (weight eight ounces) exhibited serous atrophy, was smaller than normal, and its right auricular wall was œdematous. There were some atheromatous plaques scattered over the mitral valve cusps and the beginning of the aorta. The peritoneal cavity was distended and contained free gas besides four pints of dirty, thick, brown, evil-smelling fluid (apparently fæces). The intestines were matted together by recent peritonitis, being covered here and there with layers of lymph. Scattered throughout the peritoneum were greyish-white nodules (probably miliary tubercles). The liver weighed 4 pounds 12 ounces, was swollen, pale, and fatty, and the gall-bladder contained one stone which was nodular on the surface. There was some accompanying chronic inflammation of the sac, which also contained a small quantity of clear fluid. The duct was patent and the fluid in the gall-bladder could be forced along it after the withdrawal of the stone. The spleen weighed 16 ounces and was pale, soft, and enlarged. The pancreas and suprarenal capsules were normal. The kidneys each weighed five ounces, were very pale, and presented small whitish-grey areas in the cortex beneath the capsules. These areas, however, were not raised above the surface and were not surrounded by any zone of congestion. The mesenteric glands were greatly swollen and were similar in character to the cervical glands described above, with the exception that none of them were breaking down. No hæmolymph glands were observed. The tongue was somewhat furred and brownish, while the soft palate and uvula were thickened and firm. The left tonsil was ulcerated and necrosing and it fragmented on an attempt to remove it. Surrounding this was a mass of enlarged glands, one or two of which were beginning to break down. The pharynx and œsophagus were normal. The stomach was affected with chronic gastritis to which was added some recent subacute gastritis. The contents resembled that found in the peritoneal cavity. The duodenum and jejunum were healthy. In the ileum was a tuberculous ulcer one inch in diameter, situated about two feet above the cæcum. This ulcer had perforated the bowel and allowed of the escape of the contents through a hole which admitted of the entrance of a small probe. Around this orifice the gut was much discoloured and covered with lymph on its peritoneal aspect, while several small grey tubercles also appeared in this position. Two other minute ulcers were also visible in the intestine. The remainder of the bowel was healthy. The generative organs appeared to be normal. The osseous system showed some fragility in the ribs which readily fractured. The marrow in these and in the sternum was of the red variety.

The blood films in all of the above cases showed many peculiarities which were similar in character. The increase in the white cells in all of them was mainly due to an excessive quantity of lymphocytes of the large variety, with a large pale-staining nucleus (a fact noted by Ehrlich). The small lymphocytes appeared to be reduced in number. The presence of myelocytes was inconstant; in one case the percentage reached as high as 2½, while in others only one or none at all was seen in any of the films. Nucleated red corpuscles were seen in Cases 2 and 5. In Case 3 I unfortunately had to rely upon a poor specimen of blood from which to make the total count of corpuscles, but the symptoms, together with the differential count, are, I think, sufficient evidence of the nature of the case. The whole duration of the illness in Case 2 was indefinite and the length of time from the initial acute symptom until death was prolonged, and to this latter point I shall refer again under the heading of treatment.

In Table I. the column "Duration of Illness" refers to the acute stage of the disease—i.e., from the onset of the first acute symptoms until death. The column dealing with the occupation of the patient was suggested to me by the curious coincidence that, of the three cases which I myself saw, the first was a stable-boy, the second lived in a mews, and a third was a cab-driver.

The chief points of interest in these cases appear to be the following: (1) mode of onset; (2) nature of the disease; (3) diagnosis; (4) cause of death; and (5) treatment.

1. *The mode of onset* is insidious, the patient frequently complaining of general malaise or some trifling ailment some time before the acute symptoms are in evidence. For instance, in Case 1 shortness of breath was complained of as one of the initial symptoms. In Case 2 the onset appears to have been sudden and inquiries of the mother (made in 1905) as regards this point were unsatisfactory as she was unable to remember the exact condition of the child previously to her illness. It is within reason, however, to suppose that the pallor noticed by the mother on the second day of the child's illness may have been present beforehand, and have been unnoticed by her until the onset of the acute symptoms. Case 3 began with pains in the back and pallor, which latter symptom he stated was present for "some time." Cases 4 and 5 started with weakness an indefinite time beforehand. Amenorrhœa was noticed in Case 1 for three months and in Case 4 for eight months previously to acute symptoms. About the actual duration of the disease it is therefore impossible to be definite, and the term "acute" refers more especially to the latter part of the disease, during which time the symptoms are of an acute nature.

2. As regards the real *nature of the disease*, in our present state of knowledge we can only theorise, for the reason that the initial lesion has still to be found, but judging from the above series and from the accounts of many other published cases it is probable that the proliferation of the lymphocytes, if not the first, is a very early step in the disease and that the acute symptoms are merely a result of this phenomenon and attributable to it. The swelling of the glands and tonsils, for instance, can be attributed to the accumulation of lymphocytes in these places. The subsequent necrosis of the latter, together with the stomatitis, are, of course, due to the presence of micro-organisms in the mouth. The

TABLE I.—GIVING PARTICULARS OF FIVE CASES OF ACUTE LEUKÆMIA.

Case.	Years of age.	Sex.	Occupation.	Duration of illness.	Purpura.	Melæna	Tenderness of bones.	Condition of thymus.	Condition of gums and mouth.	Condition of marrow.	Condition of spleen.	Condition of glands.	Maximum temperature.
1	18	F.	Domestic servant.	13 weeks.	Yes.	Slight.	No.	Enlarged.	Tonsils enlarged throughout; no stomatitis	Red; no fatty marrow present in long bones.	Just palpable during life. Enlarged post mortem; soft.	Enlarged in neck, axillæ, and groin.	102°F.
2	7	F.	School girl.	5 weeks.	Not observed	No.	No.	—	Tonsils enlarged throughout; stomatitis 10 days after onset.	—	Three inches below costal margin on inspiration; soft.	Enlarged in neck, axillæ, and groin.	102°
3	17	M	Stable boy.	5½ weeks.	Yes.	No.	Not observed.	No obvious enlargement.	Stomatitis 3½ weeks after onset.	—	Just palpable during life; enlarged post mortem; soft.	Universally enlarged.	101·2°
4	23	F.	No occupation.	3 weeks.	Yes.	No.	Not observed.	No enlargement.	Gangrene of the tonsils; stomatitis present.	—	Just palpable during life; enlarged and rough post mortem; soft.	—	102·8°
5	47	M.	Cab-driver.	11–12 weeks.	No.	No.	No	Not in evidence.	Ulceration and necrosis of the tonsils.	Red.	Palpable during life; enlarged post mortem; soft.	Universally enlarged.	103°

TABLE II.—GIVING THE RESULTS OF EXAMINATIONS OF THE BLOOD AND THE URINE.

Case.	Number of red cells per cubic millimetre.	Hæmoglobin.	Ratio of white cells to red.	Small lymphocytes.	Large lymphocytes.	Myelocytes.	Coarse oxyphiles.	Polylymphonuclears.	Nucleated red cells.	Albumin in urine.
1	3,850,000	—	1:70	—	90 per cent.	One seen.	Not observed.	Not observed.	Not observed.	Slight amount.
2	2,320,000	30 per cent.	1:30	—	Greatly increased in number.	None observed.	,,	,,	One seen.	No albumin.
3	3,200,000	—	1:60	—	Greatly multiplied.	2½ per cent.	,,	2½ per cent.	—	,,
4	1,968,000	45 per cent.	1:30	—	,,	Not observed.	,,	Not observed.	None.	Slight quantities.
5	2,460,000	45 per cent.	1:40	—	,,	None observed.	—	2½ per cent.	Present.	—

ecchymoses, again, may be due to small thromboses and emboli with subsequent hæmorrhage, and the general wasting and occasional delirium together with the raised temperature to toxæmia, partly from absorption of toxins from the mouth and partly from non-elimination of toxins from the blood. Unfortunately, patients suffering from this disease rarely seek advice until the condition of the blood is fully established and examinations during the early stages have therefore not been performed.

3. The *diagnosis*, provided a blood examination is performed, is comparatively easy and at once excludes such diseases as purpura and scurvy and all other forms of anæmia and spleno-medullary leukæmia. From a general sarcomatosis, however, it is not so simple to discriminate, for the general enlargement of glands, the numerous subcutaneous hæmorrhages, and the rapid course of the disease are symptoms compatible with either malady. Here, again, we are aided by blood examination, for in cases of sarcoma, although there is frequently an increase in the lymphocytes of the blood, the percentage is not usually so high and it includes as well a large increase in the small lymphocytes. In most cases of sarcoma there is also a relative increase in the other white cells. Two cases of the same disease are, however, never precisely the same and the line between general sarcoma and acute leukæmia is extremely fine. In all probability some cases reported as sarcoma have been acute leukæmia and *vice versâ*. Case 1 is a case in point. From the symptoms and blood examination it was first considered a case of acute leukæmia. On post-mortem examination two very eminent pathologists differed as to the condition of the thymus gland, one of them maintaining that it was a case of sarcoma, while the other thought the changes in the gland compatible with simple hyperplasia.

4. The *cause of death* is in most cases due to heart failure dependent upon the toxæmia. Case 5 is interesting in this respect because death resulted from perforation of an ulcer of tuberculous origin. The question arises as to whether the tubercle or the leukæmia was the primary disease in his case. I am inclined to think the latter, for though numerous other tubercles were scattered throughout the intestines in all stages of development and beneath the capsules of the kidneys, no chronic lesions were found and no evidence of tubercle could be found subsequently in any of the enlarged glands. I therefore consider the case as one of acute leukæmia with the addition of acute tuberculosis during the later stages.

5. Of *treatment* I have little to say. Drugs appear of no value. I will, however, refer briefly to the treatment adopted on the recommendation of Dr. Latham in Case 5—namely, intravenous injection of formalin solution. This was commenced on Sept. 26th, 1905, and continued until Oct. 10th. During this time the patient assured me that he felt better. His general condition, however, remained much the same and the blood count showed an increase in the percentage of lymphocytes. This patient lived nearly 12 weeks from the onset of the first acute symptoms—namely, "sore throat," but whether the treatment adopted prolonged his life or not it is impossible to say.

Sinclair-road, W.

LONDON HOSPITAL MEDICAL CLUB.—The annual dinner of this club was held at the Café Royal on Dec. 5th. Mr. E. Hurry Fenwick was the president and in a short speech preceding the musical part of the evening he related some of his early experiences of an amusing character whilst acting as a dresser at the hospital. A magnificent silver loving cup was presented to the club on this occasion by an anonymous donor. There was a very fair attendance and an enjoyable evening was concluded about 11 o'clock.

A CASE OF SPRUE TREATED BY STRAWBERRIES.

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IN THE LANCET of March 28th, 1903 (p. 873), Dr. Edward H. Young reported a serious case of sprue or psilosis which he had treated successfully by the addition of strawberries to his patient's diet. Considering the obstinacy with which this disease resists treatment I feel it my duty to give a few details of a case recently under my care in the Paddington Infirmary, for though the disease is uncommon in this country the publishing of my experiences may possibly lead to the benefit of someone when the next strawberry season comes round.

My patient was a man, aged 29 years, who was admitted to the infirmary in April, 1905, complaining of diarrhœa associated with considerable loss of flesh. He had been, as a soldier, in different parts of India for about eight years in all, and except for a slight attack of what he termed "slow continued fever" he had good health whilst there. He returned home in March, 1904, at the expiration of his period of service, feeling quite well, and he worked as a painter's labourer until December, 1904, when he commenced to suffer from repeated attacks of vomiting and diarrhœa with progressive emaciation, which continued with varying severity until the time of his admission to the infirmary.

On admission the patient was very thin and had a markedly sallow complexion. The heart and lungs showed no signs of disease. The abdomen was tumid but there was no undue resistance or tenderness in any part; the liver and spleen could not be felt. The tongue was noted to be clean and red; there was no blue line on the gums. The diarrhœa was considerable, there being about three or four stools in the 24 hours, of a brownish colour, liquid, and offensive, but with no blood or mucus. The temperature was subnormal, averaging 97° F., and no albumin was found in the urine. He was thought to be suffering from a rather severe and prolonged attack of colitis and was given a simple diet with chalk and opium for medicine, and with this he improved for a time, he seemed more comfortable, and his stools were reduced in frequency to one and occasionally two per diem, but they remained rather loose and copious and very offensive. Salol, bismuth-salicylate, and other intestinal antiseptics were tried and also the lower bowel was irrigated, but though a change of medicine, salol especially, appeared to do good for a few days, it was soon found that the effect was not lasting and the patient's condition remained about the same until the middle of June, when the diarrhœa increased again to four or five copious liquid motions in the day and for the first time they obviously had a yeasty appearance, whilst the colour was either greenish-yellow or slaty-grey. He complained at this time also of a burning sensation in his throat and of a sore tongue; the former was congested and the tongue had a glazed appearance on the dorsum with small patches of superficial ulceration at the edges, as if the epithelium had been rubbed off in places. The conjunctivæ had a yellow tinge and the patient was much thinner and weaker. It was then realised that his condition was due to sprue and he was ordered a strict milk diet, given in small quantities frequently, amounting to three pints per diem and later increased to four pints, which seemed to be about as much as he could digest. He soon began to improve, the diarrhœa diminished perceptibly, and after a fortnight the stools were not more than one or two per diem; they were more formed, though still clay-coloured and very offensive. The bared patches on the tongue healed and the patient seemed better in every way. By the middle of August the stools were not more frequent than one a day and were generally normal in appearance, though still rather offensive. The patient was of a gluttonous nature and difficult to manage as regards his diet; he now became very restive under the treatment and after much grumbling his diet was increased by the addition of bread-and-milk and subsequently bread-and-butter and an egg; but soon afterwards his stools returned to their previously grey liquid and yeasty state, he rapidly lost flesh, and the ulcers reappeared on the tongue. He was again put on a strict milk diet with a similar result as regards the improvement, the grumbling as he got stronger, and the relapse on increasing the diet. During the winter and spring following, different drugs and foods were tried, some with temporary benefit, but each relapse left him weaker than the previous one. He was weighed several times and he never scaled more than 81 pounds, which was about half his normal weight.

Having heard of the strawberry treatment for sprue I determined to try it as a last resource, and on June 8th last I ordered him one pound of strawberries per diem in conjunction with the diet he had been taking for some weeks previously, consisting of three pints of milk, a pint of beef-tea, bread and margarine, milk pudding, and an egg as the daily allowance and all drugs were stopped. On the 16th the improvement was marked; he had regained sufficient strength to be put upon the scales and he weighed 70 pounds, his stools were less yeasty, and some small abraded patches which had been present on the sides of his tongue had healed. I increased his daily ration of strawberries to two pounds and on July 2nd to three pounds when he weighed 81 pounds, though his stools were still clay coloured. On the 20th he weighed 86 pounds; his stools were formed, not unusually offensive and of a light-brown colour. He was feeling better than he had done since the commencement of his illness and I added some boiled fish to his diet. On the 31st some œdema of the feet and legs appeared, associated with irregularity of the pulse, but the cardiac weakness was corrected in a few weeks by small doses of digitalis and squill and in other respects his progress towards recovery was maintained. The supply of strawberries rapidly deteriorated owing to the hot dry weather and on August 6th I discontinued them; he then weighed 120 pounds and his stools were normal in consistence, colour, and frequency. On Sept. 4th he was put on the ordinary meat diet of the infirmary and he took his discharge on Oct. 9th, looking strong and healthy with a good colour and weighing 150 pounds, which he stated was within a few pounds of his usual weight.

This case was an extremely interesting one in that it demonstrated the usual impotency of drugs to affect the course of sprue and also the marked benefit derived from an exclusive milk diet, which I think might have yielded a satisfactory result if the patient could have been induced to submit to it for a longer period. Then comes the question of the strawberries, and from the facts narrated above it is impossible to come to any other conclusion than that they were the curative agent in this instance; they seem to have supplied something which enabled the alimentary canal to digest and assimilate the nourishment provided in the diet, but beyond that I am unable to discuss the chemistry of the subject. Two cases are obviously insufficient evidence upon which to dogmatise but these two remarkable instances point to the conclusion that a case of sprue need not be considered hopeless until strawberries have been tried.

Paddington Infirmary, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON APPENDICITIS AS A CAUSE OF INTUSSUSCEPTION.

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THE patient, a boy, three years of age, was taken to the North-Eastern Hospital for Children late on the evening of Oct. 6th by his mother, who said that he had "a lump in his stomach which was getting bigger." The history given by the mother was as follows. During the last three months the boy had complained of abdominal pain on several occasions, which at times had been very severe. For the first six weeks the pain was not associated with any other symptom and his bowels had been quite regular, but during the latter six weeks he had vomited frequently and she had noticed a "lump in his stomach"; the bowels had acted freely every day and he had passed some "streaks of blood" from time to time with the motions. During this time he had been attending a hospital where he was treated for colic.

On examination the child was seen to be well nourished

and to all outward appearances quite healthy; he complained of no pain and lay on the couch with his legs fully extended. His pulse and respirations were normal and his temperature was 99° F. The abdominal muscles were kept somewhat rigid and made palpation difficult, but at a point just above, and to the left of, the umbilicus and along the outer border of the left rectus there appeared to be a rounded tumour, which, however, was felt for only a moment, disappearing almost immediately from under the fingers. Not satisfied with this examination, I asked one of my colleagues to administer chloroform in order that I might make a more thorough examination, with the result that a definite tumour, measuring about three inches by one and a half inches, somewhat reniform in shape and freely moveable, was felt lying just above, and chiefly to the left of, the umbilicus. On rectal examination nothing abnormal was detected and on withdrawing the examining finger the child passed a loose stool. There was no blood or mucus.

The boy was admitted into the hospital and passed a comfortable night and on the next morning had two stools, both quite normal and well formed. During that day, however, he vomited repeatedly. He was seen that afternoon by Mr. Ewen C. Stabb who thought that the abdominal tumour was probably due to a mass of enlarged mesenteric glands, the vomiting being accounted for by the fact that the boy had been given chloroform a few hours previously. The symptoms not calling for immediate operation Mr. Stabb decided to explore the abdomen on the following day.

Under chloroform laparotomy was performed and the case proved to be one of intussusception. It was easily reduced with the exception of the last portion (about one and a half inches) which was œdematous and consisted of the appendix deeply imbedded in a fold in the wall of the cæcum firmly bound down by adhesions, and this, it would appear, had formed the apex or head of the intussusceptum. On "freeing" the appendix it was found to be in a chronic inflammatory condition and to have perforated about one inch from its base. Appendicectomy was performed and the abdominal incision was closed. The boy made an uninterrupted recovery and was discharged from the hospital on Nov. 6th.

Judging from the condition found at the operation the child had doubtless been suffering from appendicitis during the early part of his illness, adhesions had formed completely burying the appendix, the resulting tumour protruding into the lumen of the gut, and it is reasonable to suppose that this had acted as a foreign body and had been the cause of the intussusception.

I am indebted to Mr. Stabb for permission to publish this case.

A CASE OF CANCER IN THE MALE BREAST.

BY G. ERNEST PEACHELL, M.B., B.S. LOND., M.R.C.S. ENG., L.R.C.P. LOND.,

ASSISTANT MEDICAL OFFICER, WEST SUSSEX ASYLUM.

CANCER of the breast being of rare occurrence in the male subject the following case may prove of interest. The patient, who was a man, aged 58 years, was admitted into the West Sussex County Asylum on Feb. 21st, 1905, suffering from melancholia with distressing auditory and visual hallucinations. He was tall, fat, and well nourished; he had a double inguinal hernia, and his cardiac sounds were rather feeble. Both breasts were more developed than normal and situated in the left one, below and internal to the nipple, there was a small irregular soft lump, non-adherent to the skin or underlying structures. There was a blood-stained discharge on squeezing the nipple but no glandular enlargement and the rest of the breast was healthy. The patient stated that the tumour had been gradually forming for two years but had given him no pain or trouble. The condition was diagnosed as possibly a "duct papilloma." The growth steadily increased in size and in January, 1906, it was noted to be "an irregular hard mass, adherent to the skin, which is thin, blue, and congested over it and fixed to the pectoral fascia. The blood discharge continues from the nipple, which is slightly retracted. No glands to be felt in axilla." As the growth was evidently malignant and would have soon ulcerated through the skin I removed the breast and the lower part of the pectoral muscle on Jan. 23rd. The patient made a good recovery from this, but continued actively suicidal, agitated and depressed, and died on Sept. 10th, from fatty heart and syncope. At the necropsy there was no sign of secondary deposits in any of the organs. The growth was invading the pectoral muscle and the microscope showed it to be a typical scirrhous carcinoma. It seemed strange that, considering the growth and its activity, the axillary glands remained unaffected.

I am indebted to Mr. H. A. Kidd, the medical superintendent, for permission to publish this case.

Chichester.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Adjourned Discussion on the Operative Treatment of Non-Malignant Ulcer of the Stomach and its Chief Complications with Indications, Limitations, and Ultimate Results.

A MEETING of this society was held on Dec. 11th, Dr. THOMAS BUZZARD, Vice-President, being in the chair.

Mr. H. GILBERT BARLING said that the complete and well-balanced address by Mr. Mayo Robson in opening the discussion left little more to be expressed and certainly very little in the way of criticism. He (Mr. Barling) was not at present convinced of the wisdom or necessity of gastro-jejunostomy as a general procedure in the presence of perforation. It might be required after recovery from the emergency operation but would in many cases when performed at the same time prejudice gravely the chance of recovery, and he illustrated this from cases upon which he had operated at a later stage. In his opinion the great factor which dominated all others in recovery after perforation was the briefness of the time elapsing between the calamity and surgical intervention. He was not prepared at present from his own observation to accept gastric ulcer as a common provocation of cancer, but he thought that this question deserved very careful investigation. Mr. Barling then referred to his own recent experiences of gastric surgery as shown in 29 cases operated on during the preceding year. Three of these patients suffered from hour-glass contraction, 17 from stenosis at or about the pylorus, sometimes complicated with active ulceration, three from ulcer with adhesions due to old perforation, and six from old-standing ulcer without complication. The operation of election in these cases was posterior gastro-jejunostomy and this was performed with but few exceptions, all the patients recovering. Whilst the results were generally thoroughly satisfactory he had to acknowledge one complete failure and two others in which relief was partial only. He referred to the difficulty of deciding when to operate for hæmatemesis and would greatly hesitate to intervene in young women with profuse bleeding in whom the prior history gave little evidence pointing to gastric ulcer. The difficulty of diagnosing gastric ulcer should not be lightly dismissed and this point was illustrated from recent experiences. Stenosis was more readily determined and when dilatation of the stomach with stasis was found justification for operation was established. The statistics quoted to show the small mortality from gastric ulcer were not very convincing, partly from the uncertainty of diagnosis and partly from the predominance of female cases in these statistics, whereas his own operations showed a considerable predominance of male patients. Statistics also failed to show the misery and inability to work which resulted from ulcer. Finally he urged the wisdom of a reasonable use of exploratory operation in long-standing doubtful cases.

Dr. E. I. SPRIGGS said that there was a general agreement that a number of complications of gastric ulcer could only be efficiently treated by operation. A claim had also been put forward to include among these hæmorrhage, if severe or recurrent, and those cases which under ordinary medical treatment had relapsed. Such a claim to be established must be supported by statistics giving detailed accounts of the cases with special reference to the after-history. In looking through the one or two published series in which details were given he had found very few cases going back more than two or three years. Without prejudice to what the future might show, he thought that it was not justifiable to recommend operation because a case had relapsed until a fuller experience of the after-history of patients treated by gastro-enterostomy had been gained. He had not found any

other large series of figures that supported those of Dr. C. V. Bulstrode which had been quoted. A direct mortality of 18 per cent. from gastric ulcer was contrary to his personal experience and to the statistics of Leube and of Lenhartz in Germany, of Sears in the United States, as well as to the figures of several London hospitals, and of the Liverpool Royal Infirmary. The statement that one-third of the sufferers from this disease succumbed ultimately to it or its complications was also not verified by other writers. He thought that the poverty of the district from which the patients at the London Hospital were drawn was the probable explanation, as a suitable diet was essential after leaving the hospital. It was clearly unjust to operate upon better class patients because ignorance and poverty were rife in the East-end of London. He believed that a study of the figures published by surgeons and physicians showed that, as Mr. H. J. Paterson had concluded, the medical treatment of hæmorrhage offered a greater chance of success than operation in most cases. In many of the cases published which had been treated surgically there was very little evidence that the medical treatment had been rational and thorough. A great deal more was needed for the successful conduct of a case than the mere adoption of a routine such as rest in bed and a milk diet. Surgeons did not always hear of unsuccessful results. Such patients usually sought advice at the out-patient department of another hospital. As an out-patient physician he had had old operation cases under his care, but it was of course possible that improved operative technique would diminish the proportion of relapses. There was no denying that a considerable proportion of cases of gastric ulcer treated medically relapsed, but he believed that this was largely due to the fact that the ordinary medical treatment was discontinued before the anæmia was corrected and nutrition fully re-established. To do this required a longer time than most patients would or could give. Experiment had shown that gastric ulcers, artificially induced, would heal quickly in healthy animals but not in those rendered anæmic or into whose stomachs dilute hydrochloric acid had been introduced. He had shown in the Oliver-Sharpey lectures of this year that rectal feeding, as far as accurate experiment had gone at present, was always partial starvation. Not more than half the actual needs of a woman of average weight in bed had been shown to be taken up from the rectum. Dr. S. J. Sharkey had since also reviewed the literature in the Bradshaw lecture and had come to a rather more favourable conclusion. He believed that such a conclusion could only be arrived at by ignoring the actual quantitative results obtained in careful metabolism experiments. It was essential to know, not what percentage of a foodstuff could be absorbed from the rectum, but what total food value per day and for how many days. The amount of food which could be given in this way was extremely valuable but was always insufficient. For these reasons he believed that the treatment used by Lenhartz was worthy of a careful trial in this country. This was founded on the view that gastric juice prevented the healing of ulcers, even when no food was given. The administration of nutrient enemata was said to cause a secretion of juice. The sisters at St. George's Hospital had informed him that patients often complained of pain and nausea when an enema was given. Lenhartz gave a gradually increasing quantity of iced whipped egg and iced milk from the beginning, in order that proteid might be present in the stomach to combine with any hydrochloric acid secreted and thus to protect the ulcer from it. The food was taken in teaspoonfuls and so distributed that only a small bulk could be present in the stomach at one time. He would not venture to bring forward this method if he had not had some experience of it. During the last few months he had treated a small number of patients by it in St. George's Hospital, all of whom had suffered from hæmorrhage, and some of whom had been unsuccessfully treated by the usual method. He had had no untoward results and seen enough to show him that the patients lose their pain sooner, are more satisfied, gain weight, and are discharged in a much healthier condition in a shorter time than is the case with treatment by nutrient enemata and a graduated milk diet. There seemed to be a greater danger of a clot being dissolved by gastric juice than of it being dislodged by small quantities of semi-fluid food. In Lenhartz's series the mortality was 2 2 per cent. This treatment was like gastro-enterostomy in that a sufficient time had not yet elapsed to judge of the after results. He did not, however, believe that the medical treatment of gastric ulcer had reached finality, but thought that if complications requiring operation were operated on without delay, while ordinary cases were treated medically, with due regard to the condition of the patient as well as of the ulcer, there was great hope of still further reducing the mortality from gastric ulcer and its complications.

Mr. D'ARCY POWER said that the object of the discussion was to obtain from each speaker the results of his individual experience in the treatment of non-malignant ulcer of the stomach whether by medical or surgical means. The experience must be personal if it was to be of any value and it should be presented so far as possible without conscious bias. He had performed his forty-first gastro-enterostomy for non-malignant disease of the stomach last week, and of these 41 patients three died within 24 hours and one two months afterwards. The rest, so far as he had been able to discover, were still living, some cured and others better for the treatment. The mortality of gastro-enterostomy, therefore, in his hands had been 7·3 per cent. The cases had all been under medical treatment for a long time. Many were suffering from chronic gastritis due to ulceration of the stomach, two had drunk corrosive poisons, and four had suffered from symptoms of duodenal stenosis. He had also had 12 cases of perforated gastric ulcer with three deaths, and six cases of perforated duodenal ulcer with four deaths. In performing gastro-jejunostomy he had varied his operations from time to time partly to suit the exigencies of the case, partly as the result of experience, and partly to verify the statements of those who said that their own methods were better than those which he was using. On one occasion he used McGraw's ligature, once or twice the anterior method, usually the post-colic operation with a 12 inch loop; the last operation was post-colic without a loop, in deference to the opinion expressed in the course of this discussion. Except in the case where he had used McGraw's ligature, all anastomoses had been made by direct suture without the use of any mechanical appliance, and he was satisfied if the operation was completed in 30 minutes from the first incision to the last suture. Two of the three patients who died were women reduced to the last extremity by pain, sickness, and starvation. He was well satisfied with gastro-jejunostomy as an operation, for in none of the three fatal cases was there any leakage through failure of technique, whilst in the patients who recovered there was always some improvement and often a cure. In some of the cases the improvement was immediate as soon as the shock of the operation was over, and this was especially noticeable where the symptoms had been due to duodenal obstruction. All the cases of gastro-jejunostomy ran a straightforward course except the following, and in no instance was there any serious vomiting of the nature of a vicious circle. The first case of gastro-jejunostomy which presented anything unusual was that of a girl, aged 20 years, whose stomach had been sutured seven weeks before on account of a leaking gastric ulcer. The patient made a good and uneventful recovery from the operation, but she soon began to complain of abdominal pain radiating to the small of her back. She was put upon nutrient enemata and kept under observation in St. Bartholomew's Hospital from June 9th to 30th. She suffered from dyspepsia and vomiting after her food, and as she did not improve in spite of all that could be done for her by variations in diet, a post-colic gastro-jejunostomy with a loop was performed on June 30th. The patient subsequently passed a very bad night and was constantly sick until she brought up two large specimens of ascaris lumbricoides. The attacks of vomiting then became less violent and gradually ceased, until from July 3rd she began to make satisfactory progress. The wound healed by first intention and the stitches were removed on July 9th. At 11 A.M. on July 14th she began to complain of pain and her abdomen was found to be tender but not distended. At 2 P.M. on this day she had an attack of severe epigastric pain; there was considerable abdominal distension and her liver dulness had markedly diminished. At 4.30 she vomited 18 ounces and at 6 15 P.M. four ounces. Her pulse rose from 104 to 148, and as she was in great pain a hypodermic injection of morphine and opium fomentations were ordered. She vomited a further 12 ounces and then passed a good night, the abdominal pain disappeared, and she had no further hindrance to convalescence. She left the hospital on July 23rd. Mr. Power believed that he would have saved the patient this attack of pain and discomfort if he had performed the gastro-jejunostomy without a loop, for he had

very little doubt that it was due to duodenal stasis. The second case was that of a deaf and dumb girl, aged 19 years, who was admitted into the Bolingbroke Hospital for pain and vomiting due to an ulcer of the stomach for which she had been under medical treatment on three occasions previously. A post-colic gastro-jejunostomy was performed. Recurrent hæmorrhage occurred and the stomach was again opened. No actual bleeding point was detected. She eventually did well and returned to work. The next troublesome case was that of a domestic servant, aged 27 years, who had suffered for 12 years from pain and vomiting after food. She was treated for three months in a medical ward and as she did not improve a post-colic gastro-jejunostomy with a loop was performed. He discovered during the operation that she had an hour-glass stomach. The patient left the hospital a month after the operation, weighing half a pound more than when she was admitted, and somewhat improved as regards the pain and sickness. The improvement was maintained for six months and she then began to suffer from her former symptoms. A year later she was readmitted and she then weighed two pounds more than when she had been discharged and her stomach only held one and a half pints instead of two pints, as it did before the operation. After a test meal six ounces less fluid could be withdrawn from the stomach than was introduced. There was a large increase in the acidity of the gastric juice. A second gastro-jejunostomy was performed in the middle of September two inches beyond the previous anastomosis which proved to be patent. The patient made a good recovery from the second operation but her condition showed no improvement. She remained in hospital until Nov. 1st, when she was admitted into one of the homes for the dying near London. She died a fortnight later but no necropsy was made. Mr. Power then gave details of a case in which recurrence of hæmorrhage took place after gastro-jejunostomy for an active duodenal ulcer, in a man, aged 31 years. In regard to the operation of gastro-jejunostomy, he welcomed Mr. Mayo Robson's suggestion that it was unnecessary to pare the mucous membrane at the edges of the gastric and intestinal incisions because the operation was thereby shortened. He had very few remarks to make on the subject of acute perforation of the stomach and duodenum, except to say that the practitioners in the neighbourhood of the large hospitals were now quite alive to the value of immediate diagnosis and operation. The last patient upon whom he had operated for a perforated gastric ulcer was taken ill at half-past 12 o'clock and by 3 o'clock he had been operated upon and was back in bed. In like manner his last case of duodenal ulcer perforated acutely at 3 o'clock one night and at 12 o'clock had been operated on, although he was six miles away; and duodenal ulcer was not so easy to recognise as gastric ulcer. It was needless to say that both patients did well. Personally, he found that the difficult cases were those to which he gave the name of "leaking" gastric ulcers, where the patient presented many of the signs of acute perforation in a modified degree and was just not bad enough to operate upon. In three such cases the patient had recovered without operation, but the last one died and a post-mortem examination showed a perforation which was so recent that it was questionable whether the actual perforation had not occurred at the time of death. He knew quite well that, broadly, in all doubtful cases an operation should be performed, but the three cases which recovered had somewhat biased his judgment.

Mr. G. E. GASK presented the following statistics from St. Bartholomew's Hospital. From 1903-05 16 cases were operated upon by gastro-jejunostomy for gastric ulcer and two died as a result of the operation, giving an immediate mortality of 18·1 per cent. Five of the 14 cases which survived were seen personally by Mr. Gask. Four were very much improved and only suffered from slight indigestion and one still had pain and vomiting. All the cases seen were operated upon during the year 1905. From 1903-05 19 cases were operated upon for fibrous stenosis of the pylorus. Of these four died as the result of the operation, giving an immediate mortality of 21·05 per cent.; six of the remaining cases were seen personally by Mr. Gask. Four patients said that the operation had been a complete success, one was greatly improved and one was relieved of his stomach trouble but complained of a renal calculus. Three patients wrote to say that they were cured. From 1897-1905 69 cases were operated upon for perforated gastric ulcer, of which 34 died, giving an immediate mortality of 49·2 per cent. 11 of the remaining 35 cases were seen personally by Mr. Gask, and of these nine were completely successful; one had been in hospital suffering from hæmatemesis (operation in 1900) and one (also operated upon in 1900) suffered from indigestion and occasional slight hæmatemesis. In three cases the scar bulged unduly and in one there was a definite ventral hernia. The scar was sound in the remaining cases.

Dr. HERBERT S. FRENCH was particularly interested in two main points—(1) the immediate results and the subsequent effects of gastro-jejunostomy in non-malignant affections of the stomach; and (2) the after-histories of patients who have recovered after operation for perforated gastric or duodenal ulcers. He found that up to 1905 altogether 47 gastro-jejunostomies for non-malignant gastric conditions had been performed in Guy's Hospital. He had tried to trace all the cases and gave notes of them all. In only two was gastro-jejunostomy performed for hæmatemesis; both these died. In the remaining cases there was gastrostasis with simple pyloric obstruction. The mortality within a fortnight of the operation was 23 per cent., due to shock, collapse, pneumonia, intestinal obstruction, or peritonitis. He discussed the reasons for this high mortality and concluded that it overstated the risks in selected cases, but he believed that there was so real a danger in the operation itself that it should never be advised without careful deliberation. Even when the operation was itself successful the results of it were not all that could be wished. Of the 34 cases that survived 19 had been traced; the rest were lost sight of, but for the sake of argument he was willing to assume that every one of these was cured. Even on this assumption at the very least 32 per cent. either got no relief to their symptoms at all or else had all their old symptoms back within a few months. He felt that gastro-jejunostomy might sometimes be performed when there was no real reason for it, and such cases would naturally swell the statistics of favourable results; but when there was real cause for the operation not only was there an immediate risk but there was also at least a one-third chance that the operation would give no relief. He thought it unwise to give the patient's friends too bright a picture of the results to be expected or else in a great many cases there was sure to be disappointment. In regard to the patients at Guy's Hospital who had recovered after perforated gastric or duodenal ulcer he had traced as many of these as possible also, and in all gave notes of 30 consecutive cases. Gastro-jejunostomy had not been performed in any of them. He had traced 18 and was able to place them in two very clear groups: (1) those who remained perfectly well, and (2) those who suffered from dragging and other pains, from adhesions, &c. Of the 18 cases traced 15 were in the first group and only three in the second. Those who did badly did very badly and were not relieved by subsequent gastro-jejunostomy. Those who did well did very well; and as 83 per cent. did so well he thought that it was contra-indicated to perform gastro-jejunostomy at the time of suturing the perforated ulcer.

Dr. HALE WHITE, in reply, said that during the discussion there had been a difference of opinion on the following points. First, in regard to the frequency with which cancer of the stomach followed on ulcer of the stomach. He was still of opinion that cancer but rarely followed on ulcer of the stomach. Ulcer of the stomach was commoner in women than in men, whereas cancer of the stomach was commoner in men than in women. A difference of opinion was also held as to the desirability of operating during acute hæmorrhage. One surgeon had expressed himself in favour of such a course; others had agreed that operation should not be done during the stage of acute hæmorrhage. With regard to the performance of gastro-jejunostomy at the same time as operation for perforation, further details were needed and no one yet had had a long enough experience to assert that it was needed and was beneficial in all cases. He urged the importance of recognising that there was a large group of cases occurring in young women who had copious hæmatemesis and yet had no ulcer of the stomach.

Mr. MAYO ROBSON said that ulcer of the stomach had rightly come to be regarded as a much more serious ailment than it formerly was. Cases of ulcer of the stomach required at first prolonged and careful medical treatment. Medical treatment of gastric ulcer was unsatisfactory; the number of deaths was large and the number of relapses very large. Mr. Paterson had stated that only 25 per cent. were cured by medical treatment. He criticised the statistics brought forward by Dr. French and said that if the

mortality was such as it was represented to be by his figures the operation should be given up. He was not in favour of operating in cases of acute hæmorrhage, but he had in certain cases operated during the occurrence of hæmorrhage. In perforating gastric ulcer time was of the utmost importance—early operation was most successful. He differed from Dr. Hale White as to the frequency of cancer following on gastric ulcer, and said that in 59 per cent. of cases of cancer of the stomach a definite history pointing to previous ulcer of the stomach could be obtained.

Dr. BUZZARD, in closing the discussion, said that the thanks of the society were due to Dr. Hale White, Mr. Mayo Robson, and the various speakers for their most interesting and valuable contributions.

MEDICAL SOCIETY OF LONDON.

Hepatic Inadequacy in Relation to Gout and other Diseases.—Functional Albuminuria in Athletes.

A MEETING of this society was held on Dec. 10th, Mr. C. A. BALLANCE, the President, being in the chair.

Sir LAUDER BRUNTON read a paper on Hepatic Inadequacy in Relation to Gout and other Diseases. He commenced by defining the meaning of the term inadequacy. There were, he said, some people who were perfectly healthy but whose muscles were inadequate for hard bodily work, others whose brains fitted them for routine work as clerks but who were inadequate for positions of responsibility, others whose lungs were inadequate for positions requiring exposure, others whose stomachs were inadequate to deal with any but the most ordinary food, or whose kidneys were inadequate to remove more than a moderate proportion of waste. He quoted inadequacy of the liver in regard to carbohydrates as a condition occurring in diabetes and glycosuria. He considered that inadequacy of the liver in regard to proteins and purins was less generally recognised although he believed it to be a condition usually known as torpid liver. He entered at some length into the chemistry of purins and the relationship of uric acid and other purin bases to cyanogen. He mentioned that uric acid could be oxidised by nitric acid into urea and oxalic acid and that pounded liver had been shown by Stockvis to have the power of converting urates into urea. These results had been confirmed by the experiments of himself along with Mr. T. J. Bokenham [1] and also by continental writers. This power was only possessed during digestion and he suggested that the enzyme of the liver which rendered it able to destroy urates might be set free from the condition of an inactive zymogen (in which it existed during fasting) by some secretion from an abdominal viscus or from the muscles in the same way that muscle juice had the power of destroying sugar increased by the addition of pancreatic juice. He recognised that inadequacy of the liver in regard to carbohydrates required to be treated by a meat dietary and that inadequacy in regard to purins required a purin-free dietary, but he considered that to put everyone on a purin-free dietary was just as absurd as to put all healthy people on the dietary of a diabetic. Sir Lauder Brunton concluded by quoting the words of Professor Russell Chittenden who said: "The best dietary for a man is a mixed diet and not too much of it." The subject that he had brought before the society was simply an old one under a new guise and was the old idea of a torpid liver for which a blue pill and a black draught used to be considered the best treatment. —Sir DYCE DUCKWORTH also referred to the valuable researches of Professor Stokvis of Amsterdam. It was a relief to think that the clinical observations of their forefathers were not all wrong, at any rate in regard to the liver. The capacity of this organ was very great but it was not capable of supporting too great a strain. Uric acid was not now regarded as of the same importance as formerly and in this view he agreed. There was in his view a gouty or "arthritic" habit of body in some but not in other people, and this habit consisted of a certain defect in the metabolic activities of the individual. He was glad that the ubiquitous microbe had not yet been seriously introduced into the pathogeny of gout. The liver was, in his view, the main organ concerned in the production of gout, though the muscles also played their part.—Dr. R FORTESCUE FOX agreed that the liver played a very important rôle in the production of gout but he believed that one of the most important functions of this organ consisted of intercepting toxic matters on their way from the intestines. Digestive disturbances often heralded an attack of gout. A distinction should, in his view, be drawn between inherited gout, which was dependent on some inherent metabolic defect, and the acquired disease, which was of dietetic or digestive origin.—Dr. WILLIAM EWART believed the principal factor in the production of gout was faulty alimentation. This disease was no doubt functional although structural changes might follow.—Dr. A. P. LUFF remarked that he had altogether ceased to regard uric acid as a poison. It was a harmless by-product of the human economy and had nothing to do with the production of gout. The liver was undoubtedly an important organ in the production of gout but not in the exercise of its power—a power which he quite admitted—of converting uric acid into urea. Gout was an auto-intoxication due to bacterial toxins from the intestines. The liver was capable, when adequate to the task, of destroying these toxins and on this ground it was important to maintain the activity of the liver in the prevention and cure of gouty maladies.—Dr. F. J. POYNTON had often thought there were two distinct morbid states, the "gouty condition" and the "gouty attack." He believed that many microbic poisons acting in persons gouty by predisposition might produce an attack.—Sir LAUDER BRUNTON, in reply, wished to emphasise the power of the liver to deal with "nitrogenous waste," among which toxins coming from the alimentary canal should certainly be included.—Mr. BOKENHAM thought that he had found that the liver was able to destroy the toxin of diphtheria and, if so, why not other bacterial toxins from the alimentary canal?

Dr. WILLIAM COLLIER (Oxford) read a paper on Functional Albuminuria in Athletes. When examining undergraduates at Oxford as to their fitness for taking part in athletic contests he had in the past found it necessary to advise far more men against submitting themselves to the strain because of pronounced albuminuria than on account of any weakness in either the heart or the lungs. For the past 20 years at Oxford, almost every term, he had examined men, apparently in the very best of health, whose urine would, after athletic struggles, contain a very definite amount of albumin. After a night's rest all trace of albumin would have disappeared. In the past he had advised these men to give up hard athletic competitions, and his opinion had over and over again been endorsed by London consultants. He now believed that this advice was quite unnecessary and therefore wrong. Last February, with the help of Dr. H. C. Lecky, lately house physician to the Radcliffe Infirmary, he had examined specimens of urine of 156 undergraduates training for the "Torpids," and had found that with the cold nitric acid test 81 specimens showed a very definite amount of albumin, or 51 per cent. Of this year's Oxford University crew, after rowing a trial from Putney to Mortlake, every member's urine contained albumin; half the crew's urine contained a very large quantity of albumin. The same thing occurred in the case of the "Torpid" crews; specimens examined of crews who had been rowing a full course almost invariably showed albumin and frequently a very large quantity. In the case of the running men the quantities of albumin thrown down were even more pronounced. In view of these facts Dr. Collier argued that it was no longer necessary to advise men to give up athletic competitions because of albuminuria, and that just as they might expect to find a physiological hypertrophy of the left ventricle and emphysema of the lungs in the athlete so they might expect to get a physiological albuminuria. He further asked whether the insurance societies ought any longer to refuse to consider the acceptance of the lives of young men between the ages of 20 and 30 years whose urines had been found to contain albumin after exercise when it could be shown that no albumin was present after rest and after a meal.—Sir LAUDER BRUNTON emphasised the importance of deciding whether the albumin was the serum or globulin variety. The diet by which the albuminuria could be avoided should also be noted. A large number of observations had been made some years ago in the German army and about one-third of the soldiers after a long march had been found to present transient albuminuria. In regard to the insurance of life investigations had been made which showed that the lives of such men had been found to be not so long

[1] Archives des Sciences Biologiques, tome xi. (supplément), Festschrift Pawlow: St. Petersburg. 1904.

as others. Moreover, these subjects had not been found suitable for foreign service.—Dr. POYNTON remarked on the frequency of physiological albuminuria in the big public schools Medical officers of these schools were coming to disregard the condition. He referred to the case of a medical man, aged 38 years, who as an athlete in early life had constantly presented albuminuria but for the past 10 years no albumin had been discovered.—Dr. EDMUND CAUTLEY referred to a possible weakness of the vascular system as being a probable cause of the condition.—Dr. COLLIER, in reply, said that in cases where physiological albuminuria existed he had invariably examined the early morning urine and had found it free from albumin. If these men had presented themselves for life insurance in the morning they would have been passed as first-class lives, but not so in the afternoon.

PATHOLOGICAL SOCIETY OF LONDON.

Lymphosarcoma of the Stomach and Abdominal Glands.—Lateral Fractures of the Axis.—Eosinophilic Pleurisy.—Infective Tumours in Dogs from New Guinea.

A MEETING of this society was held on Dec. 4th, Dr. P. H. PYE-SMITH, the President, being in the chair.

Dr. NORMAN DALTON gave an account of a specimen of Sarcoma of Abdominal Lymphatic Glands and Stomach obtained from a boy, aged 15 years, who had had abdominal pain and swelling for about four months. At the necropsy the mediastinal and retroperitoneal glands were large, rather soft, and had a uniformly white appearance on section. There were also white tumours on the diaphragm and a large white mass involving the omentum and the stomach. Small growths were present in the liver and the kidneys, but none in the lungs or the spleen. None of the growths were hæmorrhagic. The tumour in the stomach had begun in the greater curvature three inches from the pylorus and was deeply ulcerated on its inner surface, the ulcer having the punched-out appearance of a peptic ulcer. The growth in the omentum was continuous with that in the stomach and it was impossible to say whether it had spread from the stomach to the omentum or *vice versâ*. Microscopically the growth consisted of small round cells with a delicate stroma between them and was not highly vascular. The prevailing cell was like that of ordinary small round-celled sarcoma and not a lymphocyte. Dr. Dalton thought it probable that the growth began in the lymphatic structures of the abdomen, because (1) the infection was primarily conveyed by the lymphatic glands and not by the blood-vessels; (2) glands not in the line of infection from the stomach to the thoracic duct were affected, suggesting a general disease of the lymph glands, such as is seen in lymphadenoma, rather than an infection from one primary tumour; and (3) the affected glands contained no localised tumours, but were uniformly large and white, such as were found in lymphadenoma.

Mr EDRED M. CORNER read a paper upon Lateral Fractures of the Axis. It was pointed out that the bone was broken, usually on both sides, at a place where it was unsupported by the third cervical vertebra and, moreover, received all violence transmitted to it from the head. The lateral fractures of the axis owed their frequency and importance to this unfortunate mechanical arrangement by which the part of the bone which bears the brunt of violence applied to any part of the spine should receive no direct support. As the fracture could be produced by any violence transmitted along the spine this variety of fracture must be an important one. The cases which illustrated this fracture had been carefully collected from the various pathological museums of the British Isles and from the literature. In over 50 per cent. there were no symptoms associated with the spinal cord. In 1903 Mr. Corner was able by means of a skiagraph to demonstrate the existence of the fracture in a living subject. By means of the cases collected he endeavoured to show that it was a fracture which must, on account of its simple mechanical causation, be a frequent one in spinal injuries, and that the subject of it might suffer from no more than a stiff and painful neck from which he might recover perfectly. The great risk which the patient ran was from the fracture remaining undiagnosed, when an unfortunate movement might displace the fragments and cause sudden death. Diagrams were shown with the epidiascope to illustrate the method of production and the situation of the fracture. 22 examples of the fracture had been found, 12 of which had been reported as isolated examples and ten were in museums.

Dr. J. J. PERKINS and Mr. L. S. DUDGEON read notes of a case of Eosinophilic Pleurisy occurring at St. Thomas's Hospital. The patient, a girl aged 22 years, was taken ill with acute pleuritis and bronchitis while within a few days she developed acute pericarditis and 22 days from the date of admission acute endocarditis of the mitral and aortic valves was detected. Nine ounces of clear yellow fluid were aspirated from the inflamed pleural sac and a cytological examination of the exudate showed 34·6 per cent. of coarsely granular polymorphonuclear eosinophiles in a count of 500 cells, 10 per cent. polymorphonuclear neutrophiles, 23 per cent. of small lymphocytes, and 32·4 per cent. of endothelial cells. No micro-organisms were detected in film preparations of the fluid. A blood examination at the same time showed a marked leucopenia, a slight amount of anæmia, eosinophilia, and a considerable increase of the mononuclear cells. The typhoid serum action was negative. There were 92·5 per cent. of polymorphonuclear cells in the sputum and many of them contained diplococci. The staphylococcus aureus and albus were cultivated from it. A second blood examination was similar to the first and a third blood examination which was made six weeks from the date of admission showed absence of eosinophiles, a normal number of leucocytes, and a normal differential count. At the post-mortem examination there were numerous pleural adhesions on both sides of the chest, adherent pericarditis, and vegetations were present on the aortic and mitral valves. There was no evidence of tuberculosis anywhere in the body. The uterus, uterine appendages, vagina, and bladder were normal. They were unable either during life or after death to obtain any positive information as to the nature of the infection from which the patient suffered.

Dr. C. G. SELIGMANN read a paper on Infective Tumours in Dogs from British New Guinea. He said that a series of infective venereal tumours were observed in dogs in the coast villages of the Central Division of British New Guinea in the neighbourhood of Port Moresby. There had been so much crossing with imported dogs of European breed in this district that it was impossible in any case to say that an animal was of the pure native breed, but the disease occurred in animals that appeared to be so and according to the natives the disease was endemic before the advent of the white man. The beginning of the disease was in no case observed but in all the cases seen there was either a considerable amount of new growth in a breaking-down and ulcerating condition around the vulvæ of bitches or else the penis and the mucous surface of the prepuce of the male were covered with coarse papillary masses of growth. In bitches the growth invariably infiltrated the muscular wall of the vagina, but in dogs the condition observed was one of luxuriant surface growth rather than of infiltration. The only case of metastasis occurred in a dog in which both testes were completely replaced by masses of growth which had, however, nowhere penetrated the tunica albuginea. Microscopically these growths, whether in dogs or bitches, presented dense masses of polyhedral cells in close apposition and of uniform character. None showed any transformation to fibroblasts; simple capillaries ran among the cells and here and there a thin strand of connective tissue. Polymorphonuclear leucocytes, lymphocytes, and plasma cells were absent in the growth, except superficially where ulceration had taken place. The nuclei of a considerable number of the tumour cells were undergoing mitosis. These tumours were probably identical with those described in this country by Mr. G. Bellingham Smith and the late Dr. J. W. Washbourn as occurring in certain highly-bred dogs; the position and the microscopic character of the lesions were identical and in both series of cases the disease was transmitted by coitus and invaded the tissues of the vaginal walls but did not produce metastases to the thoracic and abdominal viscera.—Mr. S. G. SHATTOCK said that the growth in these dogs was a typical round-celled sarcoma and definite metastatic growths had occurred in the testicles in one case. The fact that these growths were infective was no argument against them being sarcomatous. There were all degrees of infectivity and contagiousness to be found among the sarcomata and carcinomata and it was probable that in the study of the intermediate forms the solution of the problem as to the nature of cancer would be found.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Patients.—Tuberculosis in Scotland.

A MEETING of this society was held on Dec. 5th, Dr. J. O. AFFLECK, the President, being in the chair.

Dr. WILLIAM G. SYM showed a patient on whom Krönlein's operation had been successfully performed. She was a woman in middle life who 13 years ago had received a blow on the left eye. Almost immediately after the accident the eye had begun to protrude and when she was first seen by Dr. Sym the eye was standing completely out of the socket, so that it was very unsightly and caused her much mental and some physical distress. Vision was, however, nearly complete. As the case was manifestly one of solid tumour and as there was no possibility of removing the growth by the anterior method without loss of a good eye, Mr. F. M. Caird was invited to perform Krönlein's operation, which he and Dr. Sym did in the end of July. An encapsuled tumour, afterwards proved to be a sarcoma, was easily turned out from the orbit which it filled almost entirely. In the course of the operation precautions were taken to secure the integrity of the external rectus muscle, but no trace of muscular tissue was found; it was merely a thin fibrous band. The patient's appearance on exhibition was excellent. She had on correction of an error of refraction vision of $\frac{6}{6}$ and except a little falling of the lid the only fault to be found with her condition was inability to move the eye beyond the middle line to the left.

Dr. SYM also showed a girl, aged now two and a half years, on whom he had performed Double Enucleation of the Eyes in December, 1905. When seen she was a miserable, querulous child, obviously suffering much and showing unquestionable signs of glioma of the right retina. She was admitted to hospital and the right eye was enucleated. Within a week it was evident that a neoplasm was rapidly growing in the left eye as well and it was at once enucleated also. On pathological examination the characteristic appearances of glioma were proved to exist in each eye. Dr. Sym showed preparations of the two eyes, mounted in jelly. The patient at this date, one year all but two weeks from the time of the operations, was a healthy, rosy-complexioned, lively child, quite happy and well, weighing 2 stones 6 pounds. The orbits were healthy and sound, without a suggestion of recurrence. A special point of interest in the case was the fact that this was the second child in the family who had suffered from glioma; the eldest of the parents' six children had died some years ago from that disease.

Dr. BYROM BRAMWELL showed a case of Fracture of the Base of the Skull occurring in a man, aged 21 years. There was complete and permanent blindness of the right eye due to injury of the right optic nerve. There had also been complete left facial paralysis with reaction of degeneration and paralysis of both external recti muscles, but under appropriate treatment the facial paralysis had undergone almost complete recovery.

Mr. CAIRD exhibited two lads after Removal of Naso-pharyngeal Fibrous Polypi. The first one was operated on in February, 1905, on account of blocking of the nose and snoring. A preliminary tracheotomy was performed and then an incision as for removal of the right upper jaw was made. The entrance to the larynx was stuffed and the upper jaw removed. Free access was thus obtained to the growth which was then excised. In March, 1906, another similar operation was performed on account of recurrence of the tumour. On Nov. 2nd, under cocaine, a tumour much larger than the first was removed. On account of the absence of the bone the operation was easily performed. The tumour was a pure fibroma. Little deformity resulted from the operation and the boy spoke well with the aid of a palatal plate. In such tumours the tendency to recurrence abated with age. The second patient was 13 years of age. A blow on the bridge of the nose was credited with producing the disease because one month subsequently to the injury he began to suffer from difficulty in breathing, with pain in swallowing. The nose soon became quite blocked. Under cocaine anæsthesia a preliminary tracheotomy was performed three days before the operation for removal of the tumour. A temporary ligature was placed round one of the common carotid arteries but it was found to have little effect in controlling hæmorrhage. The soft palate was split and the tumour was removed, the hæmorrhage being very severe.

Dr. BRAMWELL read a paper entitled "The Tuberculosis Problem in Scotland." After a reference to the prevalence of pulmonary tuberculosis and other forms of tuberculous disease in Scotland at the present time, he said that during the past ten, and especially during the past five, years there had been a great advance of opinion amongst the medical profession, the public health authorities, and the community in general with regard to the true nature of pulmonary tuberculosis and the methods of dealing with it. The circular of the Local Government Board of March 10th, 1906, was then considered. In Dr. Bramwell's opinion this was the most important step in advance which had been made for the prevention of the disease in this country, but it required some qualifications and explanations, for otherwise it might give rise to grave misunderstandings on the part of the profession and the public. Many of the measures, such as rigid isolation, removal to hospital, and so on, which were necessary in the case of most of the other infectious diseases, such as small-pox, scarlet fever, and typhus fever, were not necessary for the great majority of cases of pulmonary tuberculosis. The last paragraph of the circular with regard to the compulsory notification of pulmonary tuberculosis was unfortunately worded. In his opinion the public health authorities should only be obliged to provide effective measures for the treatment of cases of the disease which were compulsorily or voluntarily removed to hospital, and the great majority of these cases were incurable; at the same time he considered that it was most desirable that sanatoriums for the treatment of early cases should be provided in every sanitary district.

Dr. R. W. PHILIP said that the circular of the Local Government Board represented the highwater mark of official statement throughout the world on the subject of pulmonary tuberculosis. The authoritative declaration on the part of the Board that pulmonary tuberculosis was an infectious disease within the meaning of the Public Health (Scotland) Act, 1897, marked a great forward advance. On that account he would have been glad if Dr. Bramwell had said something equivalent to an expression of the society's approval of the circular. Such an assurance from the Medico-Chirurgical Society would doubtless be both reassuring and gratifying to the Local Government Board and would tend to strengthen the hands of the medical member of the Board—Dr. W. Leslie Mackenzie—to whom much of the credit of this forward step was assuredly due. It was a matter of congratulation for Scotland that a problem of considerable obscurity and difficulty had been cleared up by the issue of a statement at once definite and authoritative.

Dr. DAVID LAWSON said that in the circular the Board stated that except where the adoption of compulsory notification by a community was accompanied by a provision for isolating and treating cases of pulmonary tuberculosis the Board was not prepared to sanction it. This seemed to him to be very undesirable because, as evidenced by the labours of Biss of New York and other workers, compulsory notification by supplying trustworthy data regarding the distribution and incidence of the disease, and in this way educating the public, had done much good. Many districts were prepared to adopt notification now if it did not imply the erection of buildings, and the effect of the Local Government Board's policy would be to retard the adoption of compulsory notification in those districts. With regard to the diagnosis of pulmonary tuberculosis, Dr. Bramwell had expressed the opinion that the basis upon which pulmonary tuberculosis should be notified and isolated ought to be a bacteriological one, founded upon the proved existence of bacilli in the sputum. This, however, was far from being a trustworthy indication, because many of these patients had no sputum at all, and his own experience of monthly examinations of the sputa of patients, carried on regularly during the past six years, showed that bacilli might be found in one month and might be absent for the next two or three months.

Dr. CHARLES E. DOUGLAS (Cupar, Fife) said that provision for notification was the most important part of any preventive scheme, but the clause which dealt with notification in the circular was worded ambiguously. The Local Government Board stated that any proposal for notification must be followed by effective measures for curative treatment. Notification, however, was not an invariable preliminary to hospital treatment, for of the seven notifiable diseases only two—namely, small-pox and typhus fever—

were always put into hospital. Furthermore, the Factory and Workshops Act, 1901, provides that four diseases, one of which—namely, anthrax—was very contagious, should be notified, but without any provision for hospital treatment. Again, Sheffield, where notification had been compulsory for three years, had not as yet begun any scheme for hospital treatment of the patients. This pronouncement on the part of the Local Government Board would greatly militate against the usefulness of the circular, as the idea of hospital treatment, with the great burden that it would put upon the public funds, was the principal argument used against notification.

Dr. ALEXANDER JAMES, Dr. T. G. NASMYTH, Dr. G. MATHESON CULLEN, and others also took part in the discussion.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.—A meeting of this society was held on Nov. 9th, Dr. R. H. Woods (Dublin), the President, being in the chair.—Mr. Charles J. Heath showed ten cases illustrating the cure of Chronic Suppuration of the Middle Ear without removal of the Drum or Ossicles or loss of Hearing.[1]—Dr. Andrew Wylie congratulated Mr. Heath upon having made a distinct advance in aural surgery. Mr. Heath had demonstrated how well his patients heard after the operation, when the complete radical mastoid operation would have destroyed the hearing. He himself had tried Mr. Heath's method in four cases, in three with success, but one had failed, probably from the existence of attic disease. He asked how the surgeon could tell when there was attic disease.—Mr. Mayo Collier congratulated Mr. Heath on an emphatic advance in the surgical treatment of middle-ear suppuration. It had fallen to Mr. Heath to discriminate between those cases which require the radical operation and those which would get well with curetting. With regard to the results on the hearing, Mr. Collier recollected one or two patients who had declined the radical mastoid operation in order to preserve their hearing and who had died as a result of their decision.—Dr. W. H. Kelson joined in the congratulations. As Mr. Heath's assistant in many mastoid operations he had often been impressed by the former's mechanical ingenuity and painstaking attention to detail.—Mr. W. J. Chichele Nourse associated himself with the congratulations offered to Mr. Heath. Hitherto the sole object of the radical mastoid operation had been the saving of life; now Mr. Heath, adopting a new line of thought, had made the preservation of the hearing a matter to be considered. Mr. Nourse referred to the importance in all radical mastoid operations of interfering as little as possible with the lining of the tympanic cavity, especially round the fenestræ and Eustachian tube. He said that he should put the new operation in practice on the first opportunity.—Dr. Frederick Spicer also heartily congratulated Mr. Heath whose new method he had tried with most encouraging results.—The President was much impressed by Mr. Heath's results. In his opinion this was the most important advance since the radical mastoid operation was first devised. This was the perfection rather than a variation of the radical mastoid operation. In only a very few cases of the old operation did improvement in hearing follow. In most it became worse. He uttered a word of caution, however; that Mr. Heath's operation be not too hastily and too enthusiastically praised. Many more cases had to be operated on before they could say that the operation was perfect. The difficulty was in cases of attic disease.—Mr. Heath thanked the President and Fellows for their unanimous expression of congratulation. In reply to criticisms, especially regarding disease in the attic, he said that he had lately operated on three of these cases, and he had found not only attic but antrum disease, and probably the attic in these cases would recover when the antrum was cured. In extensive attic disease he would probably perform the radical operation, but he hoped in future by performing the new operation early in the course of a suppuration of the middle ear to save the hearing, to cure the disease, and thus to eliminate the necessity for the radical operation. He hoped to cure the disease before the osseous structures in the attic became affected. He agreed with Mr. Nourse regarding the necessity of preserving the lining membrane of the tympanum, and with the President in his desire to see more cases. Since the ten cases published in THE LANCET he had operated on 12 more patients with equally good results. One of these had been a sufferer from perforation and suppuration for 32 years. The patient had now gone home with a sound drum.—Dr. Wylie showed a case which had been operated upon for removal of epithelioma of the tonsil with secondary infection of a cervical gland. Having removed the gland the disease in the tonsil was excised through the buccal cavity by scissors, the cheek having been split to provide sufficient access.—Mr. H. Clayton Fox, Dr. Spicer, and Mr. E. Dennis Vinrace having made some observations, Mr. Mayo Collier congratulated Dr. Wylie on a brilliant operation. He did not think that the presence of an enlarged gland at this date detracted from the success of the operation.—The President and several other Fellows joined in congratulations.—Mr. Mayo Collier showed a case of Laryngeal Tuberculosis and also a case of Double Paresis of the Abductor Muscles of the Larynx in a man, aged 56 years.—Dr. P. H. Abercrombie showed a case of Tuberculoma of the Naso-pharynx.—Mr. Harold S. Barwell showed a case of Gumma (?) of the Larynx in a man aged 27 years. There were a large rounded mass occupying the right wall of the larynx with an outward projection into the pyriform fossa. There were no history of syphilis and no evidence of syphilis elsewhere. Mercury and potassium iodide had been given in large doses with some benefit. Microscopically the tumour showed simple inflammatory tissue with endarteritis.—Mr. Mayo Collier did not think the tumour was a gumma. He drew attention to external signs of perichondral abscess over the thyroid cartilage.—The President thought that the case was one of epithelioma in spite of the patient's comparative youth.—Dr. Wylie showed a case of Tuberculosis of the Larynx in a man, aged 31 years.—Mr. Chichele Nourse showed a case of Malignant Disease of the Larynx and Cervical Glands in a man aged 59 years. Dr. V. H. Wyatt Wingrave reported the growth to be an endothelioma.

NOTTINGHAM MEDICO CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 5th, Mr. E. Powell, the President, being in the chair.—Mr. W. B. Blandy showed a Cretin, aged two years, undergoing progressive improvement, physical and intellectual, whilst taking thyroid extract.—Dr. F. H. Jacob showed a child, aged three years, who had come under treatment for a Hairy Mole one inch in diameter on the face. Radium had been applied to part of the surface, with the result that the hairs and pigments had disappeared and there was no sign of recurrence three months later.—Mr. W. Morley Willis showed a man, aged 45 years, in whom he had eight months previously excised the Patella for a comminuted fracture into seven separate fragments, the result of direct violence. Perfect movement of the knee-joint had resulted.—Dr. C. H. Cattle showed a boy, aged 16 years, who had come under observation with large Lymphadenomatous Masses in the Neck, Axillæ, and Groins. He had lost weight but no disease could be detected in any internal organ. Great improvement had followed ten-minim doses of liquor arsenicalis three times a day and he had gained 15 pounds in weight.—Dr. W. B. Ransom, in opening a discussion on Diets, alluded to the view long current amongst European races that flesh food carried with it strength and endurance, such an idea being supported by the observations of Livingstone and other travellers. Latterly, vegetarian diet had been vigorously championed as imparting greater energy, both physical and mental, while meat products had been held to be virtually poisonous. Uric acid was stated by some to be the cause of a large number of major and minor ailments. Chemical experiments with uric acid and other purin bodies did not wholly confirm Dr. A. Haig's teaching, and his diet rigidly excluded certain staple vegetarian foods, while it included milk, butter, and cheese. Apart from sectarian distinctions as to what a man should eat and what he should avoid, one group of critics urged strongly that the usual standard was excessive in amount. As a matter of history, the avoidance of meat was quite consistent with the greatest mental and bodily vigour. In this country the consumption of meat had steadily increased, while in Japan there were signs that that nation was not now wholly satisfied with the light and frugal diet which had been traditional in the East for many centuries. Individual instances were, however, numerous of men who attributed improved health and increased vigour to avoidance of flesh or animal diet in any form, or even contented themselves with two meals a day. There was experimental evidence to show that in

[1] See THE LANCET, August 11th, 1906, p. 353.

some animals an exclusively meat diet and its katabolic products were positively injurious, reducing vitality and promoting degenerative changes. It was possible that the evil lay, not so much with uric acid, as with hypoxanthin and other purin bodies, which had been followed by bad headaches, high blood-tension, and eventually atheroma. Diametrically opposed to the pure vegetarians were the adherents of the Salisbury treatment, who found every necessity satisfied by a diet of minced lean beef and hot water. There was a golden mean in many things and the statement of Sir H. Thompson that "half the chronic disease of the middle and upper classes, in middle and later life, is due to avoidable errors of diet," rested upon a solid basis of truth. In the matter of quantity Chittenden's long and careful observations showed that he only needed about the average amount of non-proteid and from one half to one third the usual allowance of proteid food to give him "greater freedom from fatigue, greater aptitude for work, and greater freedom from minor ailments." Similar results also followed in the case of groups of athletes under prolonged observation and he concluded that purin bodies were not beneficial and might with advantage be reduced in any diet.—The discussion was continued by the President, Dr. T. Henderson, Dr. W. Tibbles, Dr. J. Watson, Dr. W. Hunter, Miss S. Gray, and others.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Dec. 6th, Mr. Frank T. Paul, the President, being in the chair.—The President showed a patient, aged 63 years, from whom he had partially removed an Epitheliomatous Cyst which had been growing for two years under the left sterno-mastoid muscle. The cyst contained a clear brown fluid and flocculi and its walls resembled those of a dermoid cyst. There was too much surrounding infiltration to permit of the complete removal of the growth. The microscopical examination of the portion removed showed that it was a deep epithelioma.—Mr. Damer Harrisson, Dr. W. H. Broad, and Mr. Alan H. Pinder also showed Surgical Cases, while the President and some other members exhibited their portable operating tables.—Among the medical cases were a rare case of Myositis Ossificans, shown by Dr. J. Hill Abram; a case of Mitral Stenosis with no cardiac murmur but with marked backward pressure in the veins, shown by Dr. T. R. Bradshaw; Fibroid Lungs, exhibited by Dr. R. J. M. Buchanan; and Aneurysm of the Aorta, Innominate Artery and Right Carotid, and a case of Exophthalmic Goitre which was improving under the internal administration of rodagen, shown by Dr. A. G. Gullan.—An instructive series of skin cases was shown by Dr. F. H. Barendt, Dr. H. Leslie Roberts, and Dr. G. G. Stopford Taylor. Among Dr. Taylor's cases was one of Recklinghausen's disease with elephantiasis of the left leg and fibroma of the palm. The patient was a woman, aged 44 years; the leg began to swell 23 years ago and now measured 35 inches around the calf. The fibromata of the palm and trunk had begun 20 years ago.—Dr. Taylor also showed a girl, three years of age, with Urticaria Pigmentosa which began when the child was nine months old.—A number of interesting ophthalmic cases were exhibited by Mr. T. H. Bickerton, Dr. K. A. Grossmann, and Mr. Charles G. Lee.—Dr. W. B. Warrington read a paper written jointly by himself and Mr. Robert Jones entitled "Some Observations on Paralyses of the Brachial Plexus," which is published at p. 1644 of our present issue.—The paper was discussed by Mr. Harrison, Mr. G. G. Hamilton, Mr. R. W. Murray, and Professor A. M. Paterson.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Dec. 7th, Dr. J. T. Connor, the President, being in the chair.—Dr. T. G. Stevens read a paper on Dysmenorrhœa which he conveniently defined as that degree of menstrual pain which prevents a woman from carrying on her work or social duties. He recognised three classes—congestive, spasmodic, and membranous. Congestive dysmenorrhœa was met with in married women who had had children or abortions and in single women who had had some inflammatory trouble—e.g., endometritis. The pain was constant, pre-menstrual, and relieved at the flow. Treatment consisted in using those drugs which controlled uterine congestion and the best one was ergot. If it failed a thorough curettage was the only rational treatment. In spasmodic dysmenorrhœa the pain was intermittent, menstrual, and accompanied the flow. It mostly occurred in virgins and nulliparæ and, as a rule, pregnancy brought about a cure. The pain was probably due to an unyielding condition of the lower uterine segment and the uteri were often small and ill-developed. Antipyrin was probably the best antispasmodic in these cases. Curettage usually produced lasting benefit and was often followed by pregnancy. Membranous dysmenorrhœa occurred in sterile married women and in single girls. The pain was more or less premenstrual, as until the membrane was expelled there was little flow. The membrane was solid, having no cavity, and was somewhat of the shape of the uterus. It was caused by some variety of endometritis with abnormal exudation, in which leucocytes were thrown off. Treatment was unsatisfactory, as drugs had no effect and curettage did not always cure.

SOCIETY OF ANÆSTHETISTS.—A meeting of this society was held on Dec. 7th.—Mr. A. de Prenderville demonstrated a Gag designed for use in cases in which the patient's head being upon the side it was convenient to insert a gag if necessary in front. He had found his form of gag very useful in mastoid and similar cases. Mr. de Prenderville showed also a modification of Schimmelbusch's mask so planned as to guard against the possibility of blistering the patient's face with chloroform.—Dr. J. F. M. Silk criticised the gag as having no device within the mouth for preventing it from slipping in cases where the teeth were absent or irregular.—Dr. R. J. Probyn-Williams disapproved of the position of the handle in Mr. de Prenderville's mask.—Dr. Ll. Powell described a modification of the Vernon-Harcourt inhaler which he employed in cases of head surgery. It provides a tap for continuous administration of oxygen along with the chloroform, a tube by which the expiratory valve is removed from the face-piece, and a clamp for fixing the entire instrument.—Mr. Harvey Hilliard was of opinion that the tube, containing as it would a certain quantity of expired vapours, must vitiate the indicated percentages.—Dr. Z. Mennell had tried means somewhat similar to those of Dr. Powell and was not perfectly satisfied with them.—Mr. L. Kirkby Thomas demonstrated a modification of Ormsby's inhaler designed for the gradual administration of ethyl chloride which is in vapour form from the moment it leaves the glass tube till its inhalation.—Dr. G. A. H. Barton read a paper upon the Administration of C.E. Mixture, Ethyl Chloride, and Chloroform in Succession.—Mr. J. Jackson Clarke bore testimony to the good results of Dr. Barton's method.—Dr. J. Blumfeld criticised the value of the preliminary use of such small quantities as described of C.E. mixture.

Reviews and Notices of Books.

Principles of Microscopy, being a Handbook to the Microscope. By Sir A. E. WRIGHT, M.D. Dub., F.R.S., Hon. D.Sc. Dub., Hon. F.R.C.S. Irel., Sometime Professor of Pathology, Army Medical School, Netley; Director in Medical Charge of the Department for Therapeutic Inoculation, and Pathologist, St. Mary's Hospital, London. London: Archibald Constable and Co., Limited. 1906. Pp. 250. Price 21*s.* net.

MICROSCOPISTS, especially those of the rising generation, owe an immense debt of gratitude to Sir A. E. Wright for compiling this work. Hitherto, the student who desired to use his microscope to the best advantage, with reasoned action based upon a study of the instrument and knowledge of the scientific principles of microscopical technique, has been forced to consult text-books of optics or less accessible sources of information. It is true that much of the theory of microscopy was contained in the first part of Carpenter's classical book on the microscope, but it is only comparatively recently that this part has been purchasable separate from an enormous mass of incongruous material commonly known under the designation "Wonders of the Microscope." Even the sources available were little suited to the student's requirements. In the majority of cases they were too elementary to serve his purpose; in others they presumed a familiarity with analytical optics which was quite beyond the reader's scope; and in all there was an absence of

orderly sequence which, so far as we are aware, Sir A. E. Wright has been the first to supply.

It is a curious fact that the mind attuned to biological problems appears to have an innate abhorrence of mathematics. The $x\,y\,z$ of the analytical mathematician is taboo, and only under severe stress of circumstance is a geometrical exposition given grudging consideration. Already there are signs that the biologist will in the future require to be equipped better in this respect. Physics has long been the domain of transcendental mathematics and chemistry is rapidly being invaded. Biological research is falling more and more into the hands of the chemist and the physicist, and already many of the problems of physiology, such, for example, as secretion, require considerable knowledge of mathematics for their solution. In the meantime, before the microscopist has yet become an accomplished mathematician, the book under review will be of great service. The student is not frightened at the outset by incomprehensible formulæ. The subject is treated geometrically and each step leads so inevitably to the next that the goal is reached with a minimum of labour. It is not to be imagined that a complete discussion of the principles of microscopy can be understood without some concentration of thought and at the cost of some intellectual effort. The work is written only for those who are dissatisfied with the rule-of-thumb method and are prepared to pay for improved technique. It was to be expected that an experienced teacher of science like the author would appreciate the importance of illustrating his points by experiment. Every step in the demonstration is the subject of a series of simple illustrative experiments which serve not only to break the monotony of the theoretical explanations but also to impress the points upon the minds of the students.

The work is divided into two parts, of which the first deals with the development of the object or stage picture—i.e., the development upon the stage of the microscope of that pattern of radiant points which constitutes the original of the magnified image formed upon the retina by the microscope; whilst the second part deals with the development of the magnified microscopic image and of the instrumental adjustments which minister to the satisfactory development of that image. Recognising the fundamental importance of the proper development of the stage picture an unusual amount of attention is directed to the optical characteristics of the microscopic object. These vary according to the nature of the object picture, whether simply an outline or colour picture, a combined outline and colour picture, or a picture in relief. Objects disposed upon a single optical plane are first considered and then the conditions of transmission of light through a number of superposed objects. The principles of staining, in so far as they conduce to the development of a satisfactory microscopic colour picture, are very clearly defined. Finally, the disadvantages and fallacies associated with each type of stage picture are discussed, leading naturally to the question of the limitations which are imposed upon microscopic achievement and the appraisement of their relative importance.

In the second part the author deals first with the image formed by a simple aperture, utilising it to explain the significance of magnification, resolution in plan and in depth, obstructive interference, and so on. Image formation by a lens-armed aperture is then contrasted with that by a simple aperture, and the terms angular aperture and numerical aperture are defined with illustrative examples. The defects in the image due to spherical and chromatic aberration are explained, and the defects due to diffraction, with the conditions which induce them, are very clearly and exhaustively elucidated. Passing on to the description of image formation in the case where the object is viewed through the compound microscope the subject is much simplified by the analysis of the complex system of rays into its component "vistas," each vista being the figure traced out in an optical instrument by the path of a luminous impulse from a focal point or plane of origin to its conjugate focal point or plane. This useful convention was suggested by Mr. J. W. Gordon. A further elaboration of this conception is that of a "catena" of vistas, in which a primary vista is subjected to the action of a second lens or system of lenses, with the production of a secondary vista. It will be readily appreciated that this grouping of systems of rays into vistas, and of systems of vistas into catenas greatly simplifies the discussion of these complex optical problems.

After very fully describing and exemplifying the general principles of the compound microscope a chapter is devoted to the optical elements of the instruments considered separately. Much space is assigned to the substage condenser in its various forms and the principles which underlie the different methods of using it. Practical details of testing condensers, objectives, and so on, and of centring the optical system are admirably described, and a chapter is given up to the adjustments which are required for the achievement of a critical image. Finally, the theoretical limit of resolution is discussed in the form of a criticism of von Helmoltz's deductions. It is shown that the impediments to resolution are diffusion, conspicuous antipoint due to diffraction, and obfuscation in the eye due to inherent defects in the eye as an optical instrument. It is pointed out that all of these impediments, directly or indirectly, are caused by the contraction of the beam which is associated with high magnification. Mr. Gordon's ingenious device for opening up the emergent beam from the microscope before it reaches the eye is described. This method, which is probably the greatest discovery in microscopy made in recent years, is by means of a tandem microscope. The image furnished by the objective is received upon a finely ground glass disc. In passing through this screen the beam is opened up by refraction and is received into a second objective provided with an eyepiece as in the ordinary microscope. The image of the grain of the ground glass is eliminated by keeping the disc in movement on an eccentric driven by a motor.

The indebtedness of the author to the eminent microscopist, Mr. Gordon, is gracefully acknowledged in the preface. The collaboration has resulted in the production of a work which is a very valuable contribution to the many branches of science in which the microscope is employed. The illustrations, many of which are coloured, and the printing and general appearance of the book are good. It is to be regretted that the price is rather high, though doubtless unavoidably so, for it may prove an obstacle to that wide study and appreciation of the work which it deserves.

Gastric Surgery. Being the Hunterian Lectures delivered before the Royal College of Surgeons of England on Feb. 19th, 21st, and 23rd, 1906. By HERBERT J. PATERSON, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., Hunterian Professor of Surgery and Pathology at the Royal College of Surgeons, Assistant Surgeon to the London Temperance Hospital. London: Baillière, Tindall, and Cox. 1906. Pp. 181. Price 6s. net.

WE have already expressed in a leading article devoted to a consideration of the surgery of the stomach, our opinion on the Hunterian lectures delivered in the spring of this year by Mr. Paterson; we were very favourably impressed by the substance of his lectures and the manner in which they were presented.[1] As we valued them at the time when they were delivered we are glad to find that the lecturer has issued the lectures in book form, with such slight alterations as further experience has suggested. The voluminous correspondence which appeared in the columns of

[1] THE LANCET, March 3rd, 1906, p. 610.

THE LANCET soon after the delivery of the lectures shows the burning nature of several of the questions considered; and these questions cannot be looked upon as yet settled either one way or the other. Several years must elapse before surgeons are at one as to the best method of performing gastro-enterostomy for instance, and inasmuch as the result depends greatly on minute details, we are glad to see that the author has added a description of the method in which he performs this operation. The bibliography of the technique of gastro-enterostomy, which is appended, is likely to prove useful. We commend this work to our readers as a valuable exposition of an important branch of modern surgery.

Lectures on Massage and Electricity in the Treatment of Disease. By THOMAS STRETCH DOWSE, M.D. Aberd., F.R.C.P. Edin., &c. Sixth edition. Bristol: John Wright and Co. 1906. Pp. 447. Price 7*s.* 6*d.* net.

THIS book of lectures has now reached its sixth edition and is too well known through its previous editions to call for any extended review. As before, the first section treats of the subject of massage. This is done in a very exhaustive manner, every branch receiving its due amount of attention. A detailed description of the Weir Mitchell treatment is given, and subsequent chapters deal with the application of massage in the treatment of special conditions, such as hysteria, neurasthenia, spinal disorders, diseases of bones and joints, drug habits, and wasting diseases of children. This first section concludes with a chapter on the Nauheim or Schott Treatment in Diseases of the Heart. Section II. deals with medical electricity, and considering how often massage and electricity are employed together in the treatment of the same case the excuse for the inclusion of a section on medical electricity is easy to understand. At the same time, having observed the masterly style in which the first section was treated, we think this part falls rather flat and that it would have been better either for it to have been made more complete or to have been omitted altogether. To crowd into something less than one hundred pages the subjects of electro-therapeutics, x rays, high-frequency currents, and photo-therapy, to say nothing of a fairly lengthy chapter on electro-physics, is very like attempting the impossible. Apart from this the book is to be commended and will be found an accurate and complete guide on the subject of massage.

LIBRARY TABLE.

Sir William Flower. By R. LYDEKKER. London: J. M. Dent and Co.; New York: E. P. Dutton and Co. 1906. Pp. 191. Price 2*s.* 6*d.* net.—This sketch forms one of the series of biographies of "English Men of Science," edited by Dr. J. Reynolds Green. As the social and personal sides of Sir William Flower's career have already been dealt with in the "Life of Sir William Flower" published by the late Mr. C. J. Cornish in 1904, Dr. Lydekker in the volume now before us concentrates his attention on the scientific work of Sir William Flower's life. That this should be so is only fitting in the case of a biography belonging to a series specially devoted to men of science. An incidental advantage of this arrangement is that the author has been able in the main to confine himself to the discussion of topics with which he is familiar. The book is divided into eight chapters. The first presents a short general sketch of Sir William Flower's life, and the subsequent ones deal with his work as conservator of the Museum of the Royal College of Surgeons of England and Hunterian Professor, as Director of the Natural History Museum, as President of the Zoological Society, with his general zoological work, with his work on the Cetacea, as an anthropologist, and with his work for the various county, school, and other local museums in which he took an interest. There is an appendix with a list of some biographical and obituary notices of Sir William Flower and a list of the more important of his scientific publications. The book may be described as a just and sympathetic account of an interesting man's work, of a man who beginning life as a surgeon developed a special bent; it should have a considerable circulation amongst the members of our profession and among those devoted to scientific work. Sir William Flower was undoubtedly a man of high and noble character, endeared to all with whom he was brought into intimate relations by his unfailing courtesy and charm of manner. To the author of this volume "he was a friend and counsellor such as cannot be expected more than once in a lifetime." Dr. Lydekker is to be congratulated on the appearance of this book.

A Manual of Bandaging: Adapted for Self-Instruction. By C. HENRI LEONARD, M.A., M.D., Professor of Medical and Surgical Diseases of Women and Clinical Gynæcology, Michigan College of Medicine. Sixth edition. London: Baillière, Tindall and Cox. 1906. Pp. 159, crown 8vo. Price 3*s.* 6*d.* net.—By the issue of this manual the author "has hoped to meet the wants of students of medicine and practitioners who have had no opportunities for hospital drill in bandaging." In the work the application of almost every bandage is illustrated. But few double-headed bandages are given. The author has omitted these so far as possible, thus making the book consist of the simple and very useful bandages rather than those of the ornate order. A few chapters are devoted to knots, poultices, strappings, and immoveable bandages and dressings. Gerdy's classification is, in the main, followed for the roller bandages and Mayor's for most of the triangles and cravats. The book is fully illustrated with 139 engravings which are good. As far as we know this is the only book which is entirely devoted to bandages and similar applications. The text is clear and the illustrations enable the reader to carry out all the applications recommended. The author is to be congratulated on his book reaching the sixth edition.

The "Lloyd" Guide to Australasia. Illustrated. Edited by A. G. PLATE for the Norddeutscher Lloyd, Bremen. London: Edward Stanford. 1906. Pp. 469. Price 6*s.*—The increasing popularity of the Australian lines of steamers as regards tourists' traffic has called this handbook into existence. Information on all topics likely to be of interest to the traveller is given in a brief form. The book is chiefly designed for travellers who do not know anything of Australasia, though it will doubtless prove useful to residents in the countries of which it treats. The best sources of information have been consulted in its compilation and the statistics are taken from the latest official publications. Much attention has been devoted to the requirements of the tourist, and all the principal sights and excursions have been described from personal observation. The maps have been specially compiled for the book and the latest railway lines and means of communication have been added. With the recent inauguration of a new passenger service connecting the East with the Australian continent the Norddeutscher Lloyd line has established a circuit enabling the round-the-world traveller to include Australia in his itinerary, at the same time affording him the opportunity of seeing some of the most magnificent South Sea Island scenery and native life. The book is up to date and is a useful guide with pleasing illustrations.

A Complete Handbook for the Hospital Corps of the United States Army and Navy and State Military Forces. By CHARLES FIELD MASON, Major and Surgeon, U.S. Army. New York: William Wood and Co. 1906. Pp. 545. Price 18*s.* net.—This handbook is issued with the approval of the surgeon-generals of the army and the navy of the United States. The adoption of a regular scheme of instruction for the hospital corps occasioned a demand for a handbook which

would include in concise form and in one volume all the various subjects taught, thus doing away with the necessity for some half-dozen or more books from which what was needed might be obtained. The handbook of the late General Smart has been freely drawn upon for material and illustrations used in the present volume, though as it did not include many of the subjects now taught it was found impracticable to revise and to retain it as a handbook now that a higher standard of training is required in the hospital corps. The present work is profusely illustrated: it is divided into 12 parts. The following subjects are dealt with:—In Part I. The Hospital Corps in Post and Field; II. Anatomy and Physiology; III. First Aid in Injury and Disease; IV. Nursing; V. Mess Management and Cooking; VI. Materia Medica and Therapeutics; VII. Hygiene. Post and Camp Sanitation; VIII. Riding, Packing, and Driving; IX. Army Regulations; X. Clerical Work; XI. Minor Surgery; XII. Hospital Corps Drill and Regulations. The book is well produced. The text is clear, the descriptions are such as can be readily followed, and it would be difficult to improve on the illustrations. There is a good index.

Diaries, 1907.—Messrs. John Walker and Co., Limited, of Warwick-lane, London, E.C., have kindly forwarded to us specimens of their various diaries for the forthcoming year. Altogether we have received eleven. They are of various sizes and shapes, one being a useful tablet diary intended for the desk. Besides the usual dated pages for diary purposes they contain information as to postal regulations, certain astronomical details, and pages for accounts, memoranda, and addresses. The prices vary according to the style and binding from 6*d.* to 10*s.* 6*d.*, or if the cover is fitted with pockets for papers, cards, and the like, in addition to a gold-mounted fountain pen, up to 26*s.* 6*d.* A diary of some sort is a necessity for the busy man, and anybody who cannot suit his individual taste with one of Messrs. Walker's diaries must be very hard to please.

New Inventions.

A COMPACT X RAY SHIELD SPECIALLY ADAPTED FOR THE TREATMENT OF RINGWORM.

SINCE the introduction of Sabouraud's method of measuring the dosage of x rays by the alteration in tint of the barium platino-cyanide pastille, ringworm has been widely treated by x rays. The precision required in the measurement of the distances of the pastille and of the treated part from the anticathode necessitates the employment of some form of apparatus for holding the tube and the pastille. For hospital use the apparatus employed by Sabouraud (manufactured by Drault) is useful, but it is too bulky and expensive for private use in the consulting room and has the disadvantage of requiring 12 or more circular exposures for the treatment of an entire head. For several months last spring I visited the hospitals and shops searching for a suitable shield, but I could find nothing which would give all of the three things desired—(1) complete protection to the operator; (2) a large area of exposure, completely open, which could be altered at will in a minute to (3) smaller areas of exposure of different sizes limited to any portion of the scalp or body for the treatment of ringworm or other cutaneous disease. The several advantages which I found in separate shields have been combined in one shield here figured. The stand, the rubber mould into which the tube fits, and the pastille holder are similar to those of Mr. W. Deane Butcher's shield, but there is no resemblance in other respects. A metal diaphragm is attached to the protective rubber mould (shown in the illustration), into which three different sized lead glass cylinders (impervious to x rays) can be fitted. These cylinders are of the correct length, so that when the patient's skin is in contact with the free end it is exactly 15 centimetres distant from the anticathode. The free ends of the cylinders have been made of a hexagonal shape a hexagon being the mathematical figure which best fits beside its fellows. Anyone who has worked with the customary circular cylinders will appreciate the greater ease in manipulating adjoining areas with the hexagonal exposures. When a large area such as the entire vertex of the head is desired to be treated with a single exposure the diaphragm is removed by simply loosening two screws. Three pegs are then inserted into slots set far apart in the framework of the shield. The pegs are of the same length as the cylinders and are inclined slightly inwards, so that their free ends rest on the curve of the patient's head over a comparatively small area. I obtained the idea of pegs as a means of measurement from the apparatus employed by Dr. M. D. Sale-Barker at the Westminster Hospital. The rays pass readily

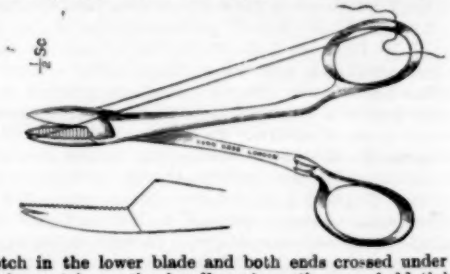
between the pegs, and have been found to be active over a circular area of six inches diameter. If it is desired to treat the entire head at one sitting the quickest method is to give an open exposure with the pegs, the neighbouring parts being protected by lead foil; by this method I have succeeded in treating an entire head by four exposures at a single sitting, but the curves of most children's heads are so irregular that it is usually necessary to give from five to eight exposures with the pegs. Incidentally I may mention that I have had made a metal ring supporting three pegs, which can be fitted on to Drault's apparatus when it is not desired to use the circular cylinders which belong to it.

Messrs. COX, of 1A, Rosebery Avenue, London, E.C., have made the above for me.

AGNES F. SAVILL, M.D. Glasg., M.R.C.P. Irel.,
Assistant Physician to St. John's Hospital for Skin Diseases, Leicester-square.

A MODIFIED ARTERY FORCEPS.

THE forceps shown below has been devised to facilitate the tying of arteries situated at a depth from the surface of the body, and particularly in those cases where, owing to want of space, great difficulty is experienced in slipping a loop of ligature along the forceps already *in situ*. The writer has found them of great assistance in cranial surgery. The method of using is extremely simple. The ligature material, whether silk or catgut, is first looped over the



notch in the lower blade and both ends crossed under the spring catch on the handle, where they are held tightly. The forceps can now be applied to an artery. When the vessel has been clipped the ends of the ligature should be released and tied in a surgical knot. If the knot is tightened the ligature will be found to slip by itself off the nose of the forceps on to the artery. The forceps has been made for me by Messrs. DOWN BROS.

F. F. CARROLL, M.B., B.Ch. Dub.,
Captain, R.A.M.C.

THE LANCET.

LONDON: SATURDAY, DECEMBER 15, 1906.

The General Medical Council: The Election of Direct Representatives for England and Scotland.

THE election of Direct Representatives upon the General Medical Council has resulted, we think, much as was anticipated. The successful English candidates, Dr. H. W. LANGLEY BROWNE, Dr. L. S. MCMANUS, and Dr. H. A. LATIMER, made a powerful group appealing in many ways to the constituency, general as well as local. Dr. LANGLEY BROWNE, as the chairman of the council of the British Medical Association, was in the eyes of those who regard the Association as representative of the coöperative interests of British medicine a very strong candidate. The excellence of his work upon this council was moreover apparent to all, and he was recognised, as soon as his intention to stand was known, as a model candidate by members of the medical profession resident in every part of the kingdom and not necessarily taking any close interest in the affairs of the British Medical Association. Dr. LATIMER and Dr. MCMANUS benefited by association in their candidature and election literature with Dr. LANGLEY BROWNE, for their claims were more or less geographical and their general fitness for the appointment not so proven. Dr. LATIMER stood for Wales and mining districts generally, in which districts, as all our readers know, a great section of the medical profession has reason to be profoundly dissatisfied with the treatment that is meted out to them by well-organised sections of the labouring population. It is an amusing, if painful, instance of the influence of selfishness over the point of view that members of trade unions, who themselves spare no pains whatever to extract by combination rises of wage and allied concessions from their employers, should deeply resent anything that looks like combination on the part of medical men to obtain fair remuneration for their work. Recent words and, for that matter, recent actions on the part of the General Medical Council have put heart into those members of the medical profession who strive to resist the tyranny of trade unions; Dr. LATIMER'S election may be regarded as an expression of that feeling in terms of votes, and we are certain that he will be found ready to support the cause which he is felt to represent. Dr. MCMANUS had the advantage of being the local candidate in the populous locality of London. His address to the electors had not behind it anything like the authority that Dr. LANGLEY BROWNE'S obtained from the position of its author, nor was he marked out like Dr. LATIMER as the champion of any movement. Moreover, in one direction his professional position was impugned in rather an inconvenient manner. The General Medical Council, with a distinct mandate from the medical profession as a guide, has set its face sternly against advertising in connexion with club appointments. A warning has been issued to members of the medical profession who accept employment from medical aid associations that, where the touting for membership includes the puffing of the medical officer, the professional position of that officer is endangered, and medical men have been actually punished for contravention of ethics in this direction. Dr. MCMANUS is a medical officer of a provident dispensary. We do not confuse the average medical aid association with the properly managed provident dispensary, and we hope that these dispensaries may soon develop on proper lines and aid in the relief of hospital abuse. But as no line can yet be drawn differentiating medical aid associations from provident dispensaries, Dr. MCMANUS'S position as an officer of one of the latter institutions might easily become awkward. For the present we consider that it is distinctly inconvenient that a member of the General Medical Council should hold an appointment at a provident dispensary. In other respects Dr. MCMANUS was a strong candidate, and the local support which he received from the first proves that in the eyes of those best qualified to judge he is esteemed as a representative of progress and reform.

The failure of the other candidates can no more be exactly explained than the election of the three chosen can be wholly accounted for, but it will be instructive to consider some of the factors which produced the results which we publish on p. 1697 of this issue. None of the candidates was actually a weak candidate and no one except Dr. LANGLEY BROWNE was exactly a strong candidate. A failure to comply with the regulations in respect of his nomination paper withdrew from the list at the last moment Mr. RUTHERFORD MORISON who would, in our opinion, have been elected easily. It is true that Mr. MORISON is a consulting surgeon, but he was for many years in general practice and possesses an accurate knowledge of the difficulties besetting the medical life. And not a medical man in England has shown more intelligent sympathy with the working lot of the general practitioner or has taken more pains to further the cause of medical reform. The Northumberland and Newcastle Medical Association, now merged in the British Medical Association, did admirable work in securing for medical men the respectful attention of mine owners and miners who had previously regarded them as fair game for exploitation. This desirable result was obtained largely by the exertions of Mr. MORISON, and we regret that he did not have an opportunity of submitting his labours to the public appreciation of the constituency. Mr. GEORGE JACKSON, Mr. GEORGE BROWN, and Mr. JOSEPH SMITH approached the electors in combination and the former two, who in the voting were close upon the heels of Dr. MCMANUS and Dr. LATIMER, probably feel that the constituency which they have served for a long time has been unduly capricious. They have done hard work, they have won the attention of the Council, and they have put forward to the best of their ability liberal and enlightened views. If reform did not come rapidly in the directions in which their energies were best displayed they cannot be blamed, and their approximation to success shows that in the eyes of the voters it has not appeared as any fault of theirs that the Council did not shape its policy

more largely in the direction indicated by their speeches. Dr. F. J. SMITH is, like Mr. MORISON, a consultant in rank, but, like him also, is a proved friend of the general practitioner—one who has been ready to work for the corporate good and has not been satisfied with merely a vague endorsement of liberal sentiments. We believe that the only circumstance which prevented Dr. SMITH'S election was that he is not a general practitioner. There is, of course, a strong feeling that the General Medical Council can be best informed of the troubles of the general practitioner by one of themselves, and against this sentiment Dr. SMITH'S claims were not expected to, and did not, prevail. The remaining three unsuccessful English candidates appealed mainly to their local friends. Dr. J. MILSON RHODES would have brought to the Council an intimate knowledge of Poor-law; Mr. G. H. BROADBENT, who made opposition to contract medical work the chief plank in his election address, is well known in Manchester as an advanced reformer; and Dr. C. J. RENSHAW, who has spent his life in the same neighbourhood, can claim to be acquainted intimately with the aspirations and difficulties of general practitioners in the north-west of England. The failure of Dr. RHODES to obtain more general support has come to us as the only surprise of the election, for undoubtedly the medical side of Poor law administration presents many problems which require discussion.

The election for Scotland also went as, we think, had been anticipated. Dr. BRUCE, whose admirable work in behalf of the medical profession in Scotland will not be readily forgotten, suffered under two disabilities. Firstly, he was a consultant practitioner; and, secondly, he had held the post of Direct Representative for Scotland on the General Medical Council for 20 years, and a constituency that is genuinely grateful to an old representative will none the less often dismiss him for no better reason than is afforded by a general desire for change. His successful rival, Dr. NORMAN WALKER, was a distinctly strong candidate. He has been an officer of the British Medical Association, has been in close contact with the direction of medical education on the business committee of the General Council of the University of Edinburgh, and is also a medical journalist. In these various ways he had acquired a thorough knowledge and a practical insight into the needs of the electorate; and Dr. BRUCE, whose departure from the Council we must all sincerely regret, has the satisfaction of knowing that he was at length beaten by a very strong candidate.

Royal College of Surgeons of England.

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England was not without several points of interest. The number of Members present was more than the average of recent meetings and this shows, we hope, an increase of interest taken by Members in the affairs of the College, for it must be confessed that during recent years the attendance of Members at these annual meetings has been very poor. In spite of failure, in spite of discouragement, the Members should show by their presence at the meetings that the affairs of the College do possess for them an interest sufficient to induce many of them to make a small sacrifice to attend. Though the numbers change from year to year a large proportion of those present have attended in many previous years. With a faithfulness that surely merits success they come regularly every November to assist in the deliberations of their College. Another indication that the Members are taking an interest in College affairs is afforded by the fact that more than 3000 Members have asked to be supplied every year with the annual report of the Council. This is not surprising, for the report is excellent and, indeed, improves year by year. It contains the history of the previous 12 months; all that has been done, all the matters that have engaged the attention of the Council, are there recorded and no Fellow or Member can read it without interest. The President gave courteous replies to a number of questions bearing on the report and in response to a request he agreed that the minutes of the previous annual meeting should be read. This was an innovation of some importance, though the meeting was not asked to confirm these minutes.

The first motion brought forward was one restating the claims of the Members to a share in the government of the College. We were glad to find that the case for the Members was introduced with less acerbity and invective than has been noticeable on some previous occasions. We have supported the Members' claims for many years, we have on all occasions pointed out the reasons why they should have a share in the government of the College, and we have shown that not only would the science of surgery gain by such a course but that the medical profession as a whole would benefit, for the needs of the general practitioner would be appreciated to a far greater degree than is at present possible. It is, therefore, clear that we are speaking in what we consider to be the best interests of the Members when we advise them not to make too large demands. For instance, we may refer to the question of the number of members of the Council which the Members of the College should elect. The number six has been mentioned but the Members would be well advised to accept even three representatives on the Council; three would be very much better than none at all. If the Members will make only moderate demands there is a very much greater chance of their demands being granted.

The other important motion on the agenda paper dealt with the question of the admission of women to the examinations and the diplomas of the College. Not directly, indeed, for on the mere question whether women should be admitted or not nothing was said. The intention of the introducers of the motion was to claim for the Members the right of expressing an opinion on the subject. The meeting fully agreed that the opinions of the Members should be asked but there was a definite difference with regard to the point as to how this opinion should be obtained. In the original motion, as set out on the agenda paper, an alternative was offered to the Council. It was asked to ascertain the opinion of the Members either by means of a corporate meeting or by a poll. Mr. F. G. PARSONS moved an amendment in favour of taking the opinion at a statutory meeting and not at a poll but he received hardly any support and the amendment was lost. In its place an amendment was

carried that the opinion of the Fellows and Members should be elicited by a poll. To take a poll of the Fellows is a comparatively small matter, as there are only some 1100 Fellows, but to take a poll of all the Members is a much greater affair, for there are many thousands of Members, and probably some 15,000 could be reached. Still, it can of course be done but unfortunately the vast majority of those receiving the voting papers would never have heard the arguments for and against the proposal put before them. At a meeting arguments on both sides can be heard and the decision arrived at would be more likely to be in consonance with the better arguments; on the other hand, the theatre at the College can hold only a few hundred persons and even if a hall were hired for the purpose it would be practically impossible for more than a small proportion of the Members to attend. Still, those who could, and would, attend would probably be truly representative of the whole body of Members and their opinion might reasonably be taken to be the opinion of the Members as a whole. We rejoice at the opportunity for the Members to take part in the work of the College and should they employ wisely and moderately the power of choice granted to them we cannot doubt that it will have a favourable influence on the question of their having a systematic share in the government of the College. We do not for one moment concur in the pessimistic attitude of some of the speakers at the recent meeting of Fellows and Members; the moral rights of the Members to a representation on the Council are incontestable and their legal right cannot be long withheld. No argument can be more effective with respect to their fitness for the franchise than the evidence that when an important question is laid before them their answer is based not on mere personal predilections or prejudices but on the eternal immutable principles of justice and right.

The Army: Projected Changes, Material and Moral.

THAT Mr. HALDANE is both honest and indefatigable in the many-sided work which he is undertaking for what he believes to be the good of the army all must admit. He has been speaking recently at Bath on the subject of the Volunteers with relation to the projected national army, and at Bedford also he has been stimulating public interest in national defence; and at both places he adhered firmly to the main principles which he had already enunciated as governing his policy. At Bedford he took for the text of his remarks on the army that there was only one way in which the problem could be solved—namely, by having one national army composed of two lines, the first and second line, the latter resting absolutely and entirely on a voluntary basis. He declared that he had fairly well surveyed the condition of the army; that at every turn he found things which required to be attended to; that he did not cut down merely to cut down but in order to build up in places where there was deficiency. He is reported to have remarked that we had not got the medical service required for the field nor the men for the artillery to mobilise the guns. But the War Minister was nevertheless apparently animated by an optimistic spirit, for he hoped that substantial results would not only be found to have followed from a year of frugal administration but that economy and efficiency might also be found going hand in hand, a reduction being made in the cost of the army while leaving it stronger than it was before. Such a foreshadowing of benefits to come would be eminently comforting but for the fact that past experience has created a good deal of doubt and incredulity in the public mind as to the future realisation of similar and other ministerial forecasts. Certainly ever since the end of the South African war we seem to have been living in an atmosphere of army reforms and measures for reorganising and perfecting its medical and sanitary services. The mere fact that reform is still admittedly needed points to a bad adjustment between theories, measures, and results.

Mr. HALDANE recently delivered an inaugural address to the committee appointed to advise on the spiritual and moral welfare of the army on the occasion of its meeting at the War Office. While considering this address we may take the opportunity of alluding also to a recent speech made at Manchester by Sir ALFRED H. KEOGH, the Director-General of the Army Medical Service. Sir ALFRED KEOGH had been inspecting the Manchester companies of the Royal Army Medical Corps and in his address to them he very naturally touched upon some medical service problems in connexion with volunteer training. The addresses of the War Minister and the Director General have sufficient points in common to lend themselves to conjoint consideration, although this would not have been the opinion of the War Office authorities. For on looking at the constitution of the committee for advising on the spiritual and moral welfare of the soldiers, which is presided over by the Chaplain-General, and is otherwise a very good and strong one, we do not see the name of any army medical officer. Such an officer might, it will be thought, have much that would be useful and pertinent to say about religious and moral influences as affecting the soldier when sick or wounded in hospital. Mr. HALDANE is always an interesting and suggestive speaker who knows well how to put himself in sympathetic accord with his audience. As to the earnestness of his intentions there can be no difference of opinion, but it must, we think, be confessed that his meaning is occasionally elusive and that there was much that was nebulous and indefinite in his late address at the War Office. No doubt he purposely made it so, and no doubt the nature of the subject seemed to him to necessitate vagueness, but for our part we not see why. The Secretary for War desires to raise the ideals of the soldier and he hopes in some way to do this through the instrumentality of a committee which is more directly connected with the spiritual welfare of the army. The soldier is a simple person who does not trouble himself with religious controversy; in most respects he is very much what other men are, and there is, as SAM SLICK said, a good deal of human nature in man. On the other hand, barrack and camp life present their special problems to men whom Mr. KIPLING, in words equally familiar with those of HALIBURTON, has described as "no plaster saints." The problem calls for the exercise of much judgment and for considerable knowledge of human nature in general and

of that of the soldier in particular, and we consider that the committee is cut off from a valuable source of information by not containing a medical member. Has life in the army kept reasonable pace with life outside it, or can it with a due regard to order and discipline be still further altered and improved for the soldier's comfort and advantage? Are the system of recruiting and the character of the buildings set apart for that purpose of a kind calculated to keep up the soldier's self-respect? These are specimens of the broad questions which the committee must answer, while all proposals for reform must be presented in subdued colours. For of one thing we may feel quite sure—namely, that the soldier desires to be treated as a reasonably independent being in the nature and choice of his own amusements and pursuits, and that he is just as keen as any other man to fight shy of all ill-judged attempts to thrust upon him religious or moral instruction unawares.

Sir ALFRED KEOGH in his lucid and practical address at Manchester particularly dwelt upon the necessity which exists for some method of expansion of the Army Medical Service in the case of war by means of the civil medical profession. He wants to see the Volunteer Medical Service affiliated to the regular army, so that when war occurs abroad it may take its part in mitigating the horrors of warfare by tending to the sick and the wounded on the field. Everybody desires the same, but members of the medical profession, especially those who have done volunteer service with the army in time of need, are perpetually made to feel that the War Office does not wish to treat a Volunteer Medical Service with any consideration. If Sir ALFRED KEOGH can persuade or convince the War Minister that a military medical reserve could be created with comparative ease by promising fair treatment to its constituents we might find in Mr. HALDANE'S promised declaration of a comprehensive army scheme a satisfactory proposal for dealing with an obvious reform.

Annotations.

"Ne quid nimis."

AERO-TRAFFIC.

THE aeroplane has come to be discussed so glibly as to suggest that it is already *en fait accompli*. There is, however, abundant reason for thinking that the experimental stages of aero-navigation have made a very fair beginning and as that is the case many people are naturally speculating as to what are the prospects of future development which will bring the aeroplane within the sphere of everyday application. Improbable as such a consummation may appear to be we cannot dismiss such an idea entirely from our consideration when we reflect on the enormous advances made in motor traction. Only a few years ago the opinion that motor traffic would attain any magnitude was scouted, and yet we are told that in spite of the large number of motor vehicles which we now see on the road the industry is still merely in embryo. So it may be with the aero-motor as soon as a good working principle has been established. The aeroplane is not simply a balloon but a machine propelled in any required direction—the human analogue, in fact, of the bird in flight. It is interesting to ask whether the new kind of locomotion is calculated to bring fresh ills to the human race. Accidents apart, travelling by aeroplane is calculated in some directions to be a healthy mode of getting about from place to place. The vehicle will rise above the impurities contained in the air of the streets and may even reach a level far removed from the madding crowd of microbes. It is well known that on the earth's surface at normal level we practically exist in a sediment of bacteria, but as we rise above this level so the number of organisms sensibly diminishes until at last they cease to exist at all and the air is bacteriologically pure and sterile. The difference in this respect is even marked between the ground floor and the top floor of an ordinary building. The air in the former case is rich in bacterial flora, while in the latter their number is not only reduced but the pathogenic members are frequently absent altogether. If we were guided by this fact, therefore, we should stand a much better chance of escaping bacterial invasion by living on an elevated floor of a house rather than on a floor near the level of the street. The bacterial purity of high altitudes has been established by experiment. Chemically speaking also the upper strata of air are purer than the lower and even in this regard a distinct difference in the quality is seen between the air of the top and of the ground floor in favour of the former. The impurities of the air at ground level are, of course, explained by the force of gravitation bearing the particles to earth. The aeroplane, it may be assumed, will ascend above this contaminated air and soar, it need not be at a very great height, yet nevertheless into regions of air purified by light, ozone, and the process of sedimentation. All this sounds ideal, but, on the other hand, there will be a diminution of pressure which may unfavourably affect the heart's action, for the pulse-rate increases as atmospheric pressure is withdrawn, the secretions are diminished, while the evaporation from the skin and the lungs is decidedly augmented. At extreme heights there are swelling of the veins and bleeding from the nose and there is a sense of being unable to use the legs and the arms. The distressing symptoms of mountain sickness may even be simulated during a journey in an aeroplane. Doubtless, however, all these evils could be avoided by keeping the aeroplane as much as possible within certain limits of elevation and at a uniform level. The aeroplane would at least spare us from one serious nuisance of the motor-car, and that is its unfortunate habit of raising dense clouds of dust. To some extent, too, it should be free from the reproach of making distracting noises and possibly its sphere of action would be too remote to affect us by the dissemination of offensive smells.

MEDICINE AND THE COLONIAL OFFICE.

WE have received through the courtesy of a distinguished London teacher a note written to him by one of his late pupils from an address which we will give as simply "the British Central Africa Protectorate," inclosing a photograph of a very interesting case of elephantiasis. The colonial surgeon's note upon the case is: "210 ounces of clear fluid from one and 12 ounces of tarry fluid from the other side was the amount I measured. After removal of several pounds of greatly thickened and ulcerated scrotal tissue a very respectable result was obtained and the patient went off home, 45 miles away, on foot, vowing eternal prayers on my behalf." Other passages in the letter would hardly lead us to expect any good surgical results from the district where the operator resides. "Under the new Government," he says, "it seems harder to get grants for anything scientific than before. It will seem almost laughable to you that one operation of any importance exhausts the allowance of dressings &c., for a year pretty well. Things are doled out like

bowls of soup by a relief society. Occasionally one gets hold of a case of some interest, but then rarely are the necessary appliances at hand." The Colonial Office has now taken over this Protectorate and it is generally believed that the Colonial Office is more alive to medical needs and interests than is the Foreign Office. We are, therefore, very sorry to bear a statement made on the spot of so disappointing a character and hope that the writer has not quite appreciated the situation. The work thrown upon the Colonial Office has been increased enormously during the last half dozen years and it is inevitable that the pressure should be felt more in some places under so wide a jurisdiction than in others. We have every reason to believe that the policy of using the developments of medicine as one of the surest ways of making colonial rule useful, durable, and profitable—a policy which owes much of its vigour to Mr. Chamberlain's initiative—is thoroughly believed in by the present Government. The most tangible blessing that the alien occupier can bring to the native inhabitant is increased health. Again, the most practical way of insuring that the supply of colonial servants should be good and that the immigration should be regular of men able to benefit both themselves and the country of their choice is to provide, as far as possible, a medical service and measures of prophylaxis against endemic disease. No one can fail to see that this is so, and we do not believe that the Colonial Office, which has now frankly recognised this principle, is likely to be perverted from it.

A NEW SYSTEM IN WIRELESS TELEGRAPHY.

A VERY important advance in wireless telegraphy and one which may have an important bearing on the use of high-frequency currents in medicine appears to have been made by Mr. Valdemar Poulsen of Copenhagen. At a demonstration of this system at the Queen's Hall on Nov. 27th by the inventor himself the essential difference between the existing system of wireless telegraphy and that invented by Mr. Poulsen was explained to be that the latter employs continuous undamped waves while the former depends on the use of damped waves which die down very rapidly from the moment of their inception. He compares the waves generated by a sparking oscillator with the sound waves produced by a pistol shot and the continuous electric waves to the waves of sound produced by a tuning fork in continuous vibration. If the latter is placed near a piano only the one string which has the same rate of vibration will respond and give sound, the other strings remaining silent. A pistol shot, on the other hand, will make all the strings of the piano vibrate. A little consideration will show the great superiority of the new method. Regular waves of equal amplitude will carry further for the power expended and, what is equally, if not more, important, only an instrument tuned to the same frequency can receive a message transmitted by means of them, rendering interference with, or "tapping" of, messages almost impossible. Many men of science have endeavoured to produce undamped waves suitable for wireless telegraphy and the most nearly successful experiments were those in 1899 by Mr. Duddell, who discovered that when an alternating circuit of suitable capacity and self-induction is connected in parallel with an electric arc fed by direct current, the arc will under certain conditions become musical and simultaneously there is produced in the shunt circuit an alternating current having the same rate of vibration as the rate produced by the arc. In this way Mr. Duddell obtained oscillations up to 30,000 or 40,000 per second, but for the purposes of wireless telegraphy this frequency is too low and the energy is too feeble. Mr. Poulsen employs what is really a modification of Mr. Duddell's device, in that he surrounds the arc with an atmosphere composed of, or containing, hydrogen. By so doing a far higher frequency is obtained, amounting to a million or more vibrations per second. In the instruments shown the arc is placed in a strong magnetic field produced by two electro-magnets placed in series with the arc. Under this condition the potential difference between the electrodes becomes very great in proportion to the length of the arc—440 volts may correspond to a length of arc of three millimetres and a great gain in efficiency is obtained for the whole system. The arc is as nearly as possible silent, due no doubt to the inability of the human auditory system to render such rapid vibrations as sound. Mr. Poulsen then showed some very pretty resonance experiments with his generators and afterwards proceeded to explain how he had utilised them for wireless telegraphy. The sharpness of tuning with which stations on this system may be worked without mutual interference is about 1 per cent. With a somewhat improvised installation of three receivers in connexion with the same antenna three different telegrams were received simultaneously without any mutual interference. Recently with a power of about one kilowatt, perfect communication during day and night has been established between Copenhagen and North Shields, a distance of 530 miles, 150 of which are overland, with a height of mast of only 100 feet, and from this Mr. Poulsen is convinced that transatlantic communication should be readily obtained with a power of ten kilowatts. Mr. Poulsen considers that these undamped and continuous wave trains present very great possibilities in relation to wireless telephony.

THE DISINFECTION OF RAILWAY CARRIAGES WITH FORMALDEHYDE GAS.

IN a recent article on the Sanitation and Hygiene of Railway Carriages[1] reference was made to the fact that experiments were being conducted in the United States with a view of determining a satisfactory method of disinfecting railway carriages. The results of these experiments have now been published,[2] in so far as concerns the employment of formaldehyde gas as a disinfectant. The various methods of producing the gas were referred to in a recent annotation,[3] wherein were indicated the essential conditions for obtaining the gas in an active state. The author of the present bulletin, Mr. Thomas B. McClintic, deals very fully with the relative merits of these methods, especially as regards their value in the disinfection of railway cars, a number of which were placed at his disposal by the Pullman Company. The cars were selected at random, and before starting the experiments all the berths were let down, the inside doors were opened, and the windows and the ventilators were closed. The cars contained on an average 4500 cubic feet of air space. It was found that in cold weather very little formaldehyde gas was produced owing to the polymerisation of the gas at temperatures below 60° F. A small quantity of the gas is, however, efficient for surface disinfection, provided the temperature and humidity are high. A large quantity assists penetration of the gas, as also do high temperatures and humidity, but even then the penetrating power of formaldehyde is so limited that it should not be used for disinfecting articles requiring any marked degree of penetration. Under the conditions specified the quantity of formaldehyde may vary from 200 to 500 cubic centimetres per 1000 cubic feet of air space, a larger quantity than is required for ordinary rooms owing to the very rapid leakage of the gas in railway cars through ventilators and other openings. The length of exposure depends upon circumstances. Under favourable conditions two hours are usually sufficient, though the experiments showed that in surface disinfection with

[1] THE LANCET, Dec. 1st, 1906, p. 1534.
[2] Bulletin No. 27, Hyg. Lab., U.S. Public Health and Marine Hospital Service, Washington, 1906, pp. 112.
[3] THE LANCET, Sept. 29th, 1906, p. 890.

formaldehyde the organisms are mostly killed within the first hour of exposure if they are destroyed at all. For simplicity and rapidity the formalin-permanganate method is far superior to the other methods that were tried. It causes an instantaneous liberation of large quantities of the gas—a fact of importance, since the investigation showed that better disinfection is accomplished by having a comparatively large quantity of gas and a short exposure than a small quantity and a long exposure. This method proved more fatal to exposures of bacillus tuberculosis than any of the other methods of producing formaldehyde gas. The formalin and potassium permanganate should be used in the proportion of one cubic centimetre of the former to 0·5 gramme of the latter; the presence of added water is unnecessary. As regards the other methods, the retort, autoclave, and generating lamp are efficient under favourable conditions, but they are slow in action and require the use of more or less complicated apparatus. The sheet-spraying method, though simple and economical, is better adapted for cases requiring a long exposure. The whole investigation has been most thoroughly conducted, note having been made of the climatic conditions, the humidity in the cars, the temperatures at the beginning and at the end of each experiment, the duration of the experiment, and all known varying conditions. In addition to bacillus tuberculosis experiments were made with bacillus coli communis, bacillus diphtheriæ, bacillus typhosus, and bacillus subtilis. It is important to notice that organisms exposed in the toilet-room of the sleeping-cars were almost invariably killed, although cases were observed in which organisms exposed in other parts of the cars were not destroyed. It is suggested that the presence of water in the toilet room accounts for this difference. It is desirable that a copy of this bulletin should be studied by every railway official who is responsible for the hygienic condition of railway carriages in this country. As we have previously pointed out on many occasions, the subject has hitherto received too scant attention from sanitarians.

THE WILLS OF SIR THOMAS BROWNE AND OF HIS FATHER.

Mr. Charles Williams, F.R.C.S.Edin., communicated to the Transactions of the Norfolk and Norwich Archæological Society a paper upon the will of Sir Thomas Browne and that of his father Thomas Browne, together with sundry other matters. This paper has been reprinted as a pamphlet and now lies before us. Thomas Browne the elder was a mercer of Cheapside in London and his will is dated with great exactitude, "The nine and twentieth day of September, Anno Domini, one thousand, six hundred, and thirteen, in the year of the reign of our Sovereign Lord James, by the grace of God, King of England, Scotland, France, and Ireland, Defender of the Faith. That is to say of England, France, and Scotland the eleventh, and of Scotland the seven and fourtieth." Surely, however, "Scotland the eleventh" should be "Ireland the eleventh." Probate was granted on Dec. 4th, 1613. The executors were the widow and "my loving brother, Edward Browne." Thomas Browne the celebrated physician was the only son of Thomas Browne the mercer, and his mother, after being a widow for some years, married Sir Thomas Dutton. Thereupon Thomas Browne the younger was left to the care of his guardians, one of whom apparently defrauded him of the greater part of his property. Mr. Williams objects to this story on the ground that his mother and uncle would not have been so rapacious. But there is nothing in the will to show that the executors and the guardians were the same persons. And even if Edward Browne was Thomas Browne's guardian, uncles of the period in question were rapacious, at least if we may judge by the veracious history of "The Babes in the Wood." However, the point does not much matter now. Mr. Williams's pamphlet, besides the elder Browne's will, contains that of his more famous son and a delightful reproduction of a picture in the possession of the Duke of Devonshire, showing the Browne family, with the future physician hugging a rabbit. Mr. Williams also gives a translation of the oration delivered by Thomas Browne the younger at the inauguration of Pembroke College, Oxford, of which society he was a Fellow Commoner. Pembroke College was originally Broadgates Hall and was founded in 1624 at the cost of Thomas Tesdale of Glympton in Oxfordshire, and Edward Wightwick, B.D., rector of Ilsley, Berks. It took its name from William Herbert, Earl of Pembroke, who was Chancellor of the University at the time. By the way, we think that Mr. Williams takes too much for granted when he says on p. 10 that this William Herbert was he to whom Shakespeare addressed 126 of his sonnets. The identity of "Mr. W. H." is as much in dispute as is that of Junius. As to the oration, we could wish that Mr. Williams had given it in the original Latin, for the translation has been made (apparently, for we have not seen the Latin) so literal that it would seem as though the translator were ignorant of the essential differences between the two languages. But we are grateful to Mr. Williams for his paper and especially for the notes on the early life of Sir Thomas Browne which he gives us. Sir Thomas Browne is such a notable figure in medical history, a stylist of such incomparable merit, that any details as to his life and surroundings must be of interest to all who care for musical prose, for an insight into the workings of a rarely endowed mind, and for the career of one who lived an upright gentle life during one of the stormiest periods of our history.

THE "PROTOMEDICO PONTIFICIO."

"THERE is in contemplation," writes an Italian contributor, "a series of 'Lives of the Body Physicians of the Popes'—a work which must have special interest not only for the professional but for the ecclesiastical and even the diplomatic world. Among these 'Protomedici' or 'Archiatri Pontifici,' there are not a few of high scientific and clinical standing—the great Lancisi (ob. 1720) for one—and there are also others whose ability was shown in other walks besides the purely professional. In dealing with these latter the biographer must needs be circumspect, often indeed reticent—the Pope's body-physician holding relations with his august patient of a peculiarly confidential kind, involving interests not confined to the immediate *entourage* of the Vatican. An instance in point occurred under the *régime* of Pio Nono when the then Protomedico, Dr. Alessandro Ceccarelli, the immediate predecessor of Dr. Lapponi, was the involuntary witness of a scene described in the public prints of the day as one of the most dramatic and pathetic in history—a scene which became 'public property' through other instrumentality (it is needless to say) than that of the eminently able and cautious physician in question. It was in the early autumn of 1877, not many months before Pio Nono's death, that the Empress Eugénie had an audience of His Holiness—the first meeting between the two after the disastrous war of 1870-71. At that time the Pope's health had caused some anxiety, and Dr. Ceccarelli had not only to be in attendance, or at least within immediate call, on occasions when his venerable patient might be supposed to run risks from 'interviste emozionanti' (audiences likely to agitate or to excite him), but he had himself to have assistance also at hand in case such might be required. It was in these circumstances that the widowed Empress for the first time confronted the Pope—to remind him by her presence, far more eloquently than in actual words, that the war of 1870-71—'my war,'

as her ex-majesty called it in the flush of her anticipated triumph by which the Holy See was to be reinstated in its possessions and the Temporal Power restored—had been the undesigned cause of the downfall of both *régimes*, that of the Second Empire and of the Pontiff as sovereign. The situation, as recorded in the journals of the day, proved too much for the self-command of the Empress and the aged Pope. She prostrated herself before him, shedding many tears, while he, in his anxiety to raise her, was in imminent danger of falling. At that instant Dr. Ceccarelli intervened from an adjoining apartment and, with the assistance of 'camerieri' close at hand, was able to replace the agitated Pontiff in the sitting posture and to help the not less agitated Empress to regain her self-possession. The scene, as I have said, was dramatic and pathetic beyond words—though at the time it was, with more than questionable taste, suggested to make it the subject of a historical painting—and I refer to it now as one instance out of many in which the projected 'Biographies of the Protomedici Pontifici' will have to steer a circumspect course between the Scylla of 'sensational episode' and the Charybdis of unauthorised disclosure. Dr. Lapponi, I may add, was, equally with his immediate predecessors Dr. Viale-Prelà and Dr. Ceccarelli, profoundly reticent as to the information and knowledge of which he was known to be the involuntary possessor; and 'kept his own counsel' with a fidelity and, at the same time, with a bonhomie which many an inquisitive, not to say irrepressible, quidnunc of the continental type cannot recall without approval and admiration. It will be easily understood, therefore, that the series of biographies referred to will deal with the remoter pontificates and the physicians who held office under them—not, for the present, coming down later than the year, 1846, at which Cardinal Wiseman drew the line in his deeply interesting 'Reminiscences of the Four Popes'—Pius VII., Leo XII., Pius VIII., and Gregory XVI."

A FORM OF ANÆMIA IN YOUNG CHILDREN.

AT a meeting of the Société Médicale des Hôpitaux of Paris on Nov. 9th M. E. Rist and M. L. Guillemot communicated an important paper on a form of anæmia in young children which has received little attention and which they term "oligosideræmia." It was first described by M. Hallé and M. Jolly, who termed it "chlorosis du jeune âge."[1] M. Rist and M. Guillemot reported the following case. A female child was born on April 3rd, 1903, three months before term, and was suckled until the age of seven months. Then she was fed principally on sterilised milk until the age of two years and four months—i.e., until August, 1905. Her health was always indifferent and she suffered from severe attacks of gastro-enteritis, necessitating a purely milk diet for prolonged periods. From the age of one year she was of a pale yellowish colour. She was first seen on August 20th, 1905. She was thin but her face was a little swollen. Her complexion was greenish-yellow, like that of chlorosis. The conjunctivæ, lips, and mucous membrane of the mouth were pale. There were no signs of rickets or syphilis or tuberculosis. The child suffered from obstinate constipation but her appetite was good. She was very apathetic and constantly depressed and was fatigued by the least exertion, but her intellectual development was normal. A diet more suitable for her age was ordered. The amount of milk was much diminished and cereals, eggs, fresh vegetables, fruit, and bread were given. The constipation disappeared and she gained strength. But on Sept. 13th her weight had not increased and neither her colour nor her mental condition had improved. The blood was therefore examined and showed hæmoglobin, 40 per cent.; red corpuscles, 4,250,000 per cubic millimetre; white corpuscles, 6000 per cubic millimetre, and marked poikilocytosis and polychromatophilia. A differential count of the white corpuscles was normal. Thus the principal change was diminution of the hæmoglobin value of the corpuscles, as occurs in chlorosis. Under iron rapid improvement took place, the mucous membranes became coloured, and the child became lively. On Sept. 27th the hæmoglobin amounted to 56 per cent., on Oct. 23rd to 73 per cent., and on Nov. 13th to 80 per cent. This form of anæmia has never been observed in nurslings. The earliest age recorded is 11 months and from this the ages have varied up to three years. The complexion is yellowish pale, often with the greenish tint of chlorosis. The patients are puffy-looking; their muscles are soft and flaccid and their weight is subnormal. The mucous membranes are pale. The spleen is not enlarged. Murmurs have been heard at the apex or over the pulmonary artery and a hum over the jugular vein. Constipation is observed but not invariably. There may be digestive troubles, diarrhœa, and greenish fœtid stools. These yield rapidly to treatment but the anæmic symptoms are unchanged. The mental condition is strikingly apathetic and depressed; the child is constantly crying, never laughs, and will not walk or play. The number of red corpuscles is normal or almost normal, but the amount of hæmoglobin is considerably diminished, the hæmoglobin value of the corpuscles being generally below 50 per cent. The latter show poikilocytosis and polychromatophilia. Nucleated red corpuscles have never been found—a remarkable fact when the facility with which normoblasts appear in the blood of children is remembered. Thus the analogy with the chlorosis of young girls is complete, clinically and hæmatologically. It is also complete therapeutically; the effects of iron are even more marked. As to the etiology, the ordinary causes of the anæmias of childhood—syphilis, rickets, tuberculosis, and athrepsia—are not found. Etiologically the cases belong to several classes apparently very diverse but having a common bond. Some patients are twins; others are born prematurely; still others, and these are the most numerous, have been fed for an abnormally long time on diet consisting entirely, or almost entirely, of milk. As shown by Petrone of Naples all these conditions lead to privation of iron. Bunge has proved that children are born with a considerable reserve of iron, principally contained in the liver. This reserve enables hæmatopoiesis to go on during the early months of extra-uterine life, when the diet is exclusively milk—a food very deficient in iron. M. Hugounenq has shown that the iron accumulates in the liver during the last three months of fœtal life. Thus a prematurely born child or a twin is born with an insufficient reserve of iron.

[1] Archives de Médecine des Enfants, November, 1903.

THE PREPARATION OF SEA-TANGLE TENTS.

M. Debuchy has recently contributed to the *Journal de Pharmacie et de Chimie* an interesting paper on the physical properties and the methods of preparing and sterilising the sea-tangle tents which are used in gynæcological practice for producing gradual and progressive dilatation of the uterus. They are prepared from various species of laminaria, seaweeds which are found around these coasts, attached to rocks by long round stalks. These stalks are first stripped of their outer layer and dried slowly. They are then scraped and turned into perfect cylinders of different diameters, having a very smooth homogeneous surface, and are supplied in solid or hollow form as required. They are cut into lengths of 65 millimetres and are graded according to diameter in sizes corresponding to standard wire gauges as used in France. When placed in water the tents increase largely

in weight and in diameter. The following table gives the results obtained by M. Debuchy by soaking tents of various sizes in water at 15° C. for 24 hours:—

Size.	Diameter in millimetres.		Coefficient of expansion.	Weight in grammes.		Coefficient of absorption.
	Dry.	Wet.		Dry.	Wet.	
9	3·0	6·9	2·3	0·55	2·30	4·0
12	4·0	8·6	2·2	0·90	3·40	3·8
14	4·6	9·9	2·2	1·25	4·75	3·8
16	5·3	13·0	2·4	1·65	7·60	4·6
17	5·6	14·3	2·5	2·35	8·75	3·7
22	7·0	17·0	2·4	3·40	13·00	3·8

The mean coefficient of expansion is therefore 2·3 after immersion for 24 hours; at the end of four days the limit of expansion is reached, when the mean coefficient is 2·8. The mean coefficient of absorption increases in the same time from 4·0 to 5·1. Sea-tangle tents, therefore, are capable of increasing about two and a half times in diameter and from four to five times in weight when thoroughly moistened. These results were obtained with hollow tents but this variety has the disadvantage of assuming a curved form when moistened, owing to the fact that the central cells of the stalks of laminaria are much more hygroscopic than the outer cells. As regards expansion and absorption, practically the same results were obtained at 37° C. with both hollow and solid tents. Sea-tangle tents cannot be sterilised in steam; it is usual to employ dry heat or the vapour of acetone, chloroform, or 90 per cent. alcohol under pressure at a temperature of 133° C. Perfect asepsis is attainable by each of these methods. The only physical change brought about by the process of sterilising is a contraction of about 5 per cent. in diameter. The tents may be sterilised a second time, just before use, by immersing them in a saturated solution of iodoform in ether.

SANITARY PROGRESS IN STAFFORDSHIRE.

THE recently issued report for 1905 by Dr. George Reid, medical officer of health to the Staffordshire county council, affords convincing proof of the beneficial result of county council influence in sanitary matters when guided by expert hygienic advice. It appears that during the year ending in June last, with a view to improve the condition of the river Tame, the Birmingham, Tame, and Rea district drainage board (under the paramount authority of a joint committee of the county council and of the Birmingham corporation) took measures for extending the area of its biological filters and applied for that purpose for a loan of £73,000, which sum will probably have to be supplemented at no distant date. A scheme for dealing with sewage disposal for Bilston is said to be now rapidly approaching completion. The county borough of Walsall also has in hand extensive plans for sewage disposal which are in a forward condition. Oldbury, too, under the influence of proceedings taken by the county council, under the Rivers Pollution Prevention Acts, has formulated a scheme which is awaiting approval by the Local Government Board and has applied for sanction to a loan of £38,300 in order to carry out the work. Plans for sewage disposal have, it is stated, been also practically completed for Tipton and Willenhall, the authorities of which are still polluting the upper tributaries of the Tame. The new works for dealing with the Hanley sewage have made considerable progress and no less than two and a half acres of filters are already in operation, an area which nearly suffices to deal with the dry-weather flow of sewage. Extensive sewage disposal works on modern lines were opened at Newcastle-under-Lyme in May last which are yielding good results; new works are in progress at Burslem, Tunstall, and Longton; and a new scheme has been finally approved by the Local Government Board for Fenton. Negotiations for similar sanitary work are also in progress for other Staffordshire districts, notably Stoke-on-Trent and Wolstanton. This remarkable list of important sanitary work recently completed or in progress within the county of Stafford affords a thoroughly satisfactory commentary on the recent decline in the death-rate of its population and of the decreased prevalence and fatality of enteric fever. It is seriously to be regretted that many of the English county councils still fail to recognise the desirability and advantage of appointing a thoroughly qualified and experienced county medical officer of health.

THE SIXTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

ACCORDING to the decision of the Fifteenth International Congress of Medicine held in Lisbon the next congress will be held in Budapest in 1909, opening on August 29th and lasting till Sept. 7th. The first preparatory measures have been taken. His Majesty King Francis Joseph has granted his patronage to the congress. Professor Colman Müller has been elected President and Professor Emil Grósz secretary-general, and Dr. Charles Bodon one of the secretaries. Considering that the congresses held in Rome and in Moscow numbered nearly 8000 members it may be fairly assumed that owing to the geographical situation of Budapest this congress will number at least 5000 members. It is to be hoped that the leaders of the congress, who rank high in the scientific world and are well known for their energy, will succeed in gaining the foremost men of medical science as collaborators and office-bearers and will raise the standard of this congress to a high level.

THE SKIDDING MOTOR CARRIAGE.

ON Dec. 6th an inquest was held at the City Coroner's Court by Dr. F. J. Waldo to inquire into the circumstances attending the death of George Herbert Durrant who died on Dec. 2nd in St. Bartholomew's Hospital after being knocked down by a motor omnibus belonging to the London General Omnibus Company in Moorgate-street on Nov. 21st. The roadway on the day in question was very slippery and the driver of the omnibus said that when he applied the brakes the omnibus skidded; moreover, it had been skidding all the way down the road; however experienced a driver was he could not avoid skidding. The coroner is reported as saying: "How is it that such vehicles are allowed in the streets of London?" In his summing up he stated that during the months of August and September the returns showed that there were 21½ persons killed by motor-cars, motor omnibuses, and mechanically driven tramcars and 797 accidents to the same classes of vehicles in which 149 persons received injury. During the same period there had been only three deaths by horse-drawn vehicles. The jury in returning a verdict of "Accidental death" added a rider that some efficient guard should be fitted round the wheels in order to prevent similar accidents in the future. The solicitors for the company said that their clients would do what they could to meet the views of the jury. Up to the present nothing had been invented which would prevent skidding and the police regulations contained no reference to this danger. It is some comfort to hear that the authorities of this company, and we presume of other motor omnibus companies too, are desirous of finding some way of preventing skidding, but the fact remains that the streets of London are not laid out for traffic composed of enormously heavy mechanically propelled vehicles which are liable at any moment "to take charge." We are quite aware that in many cases the surface

of the roadways is anything but what it should be. Damp asphalte with a thin coating of greasy mud, for instance, is capable of making any moving object skid. The problem, however, cannot be beyond engineering skill, and we think that invention would be stimulated if a notice were put forth by the police that unless some method of preventing skidding were devised before the lapse of one year from the publication of the notice all motor vehicles would have to be withdrawn from the streets. At present the only mechanically propelled vehicles which apparently seldom skid are those delightful appanages of the rich, the electric broughams, for they are not very heavy and as a rule they go fairly slowly.

THE ANTIQUITY OF THE "SEA VOYAGE."

ONE of the earliest in point of date to recommend sea voyages to consumptives and other invalids, such as nervous persons and convalescents, was Ebenezer Gilchrist, whose work on the "Efficacy of Sea Voyages in Medicine" was first published in 1756. Gilchrist, a Scottish practitioner whose fame spread beyond the limits of his practice, may, indeed, be said to have adumbrated much that is supposed to be exclusively characteristic of modern sanatorium treatment. He saw clearly, for instance, that air is an important factor in hygiene and he recommended sea air and sea climate for much the same reasons that the atmosphere of mountains is now advocated. Curiously enough, he believed also in sea-sickness. Sailing he held to be a neglected but salutary exercise. "Exercise in a swing, or in a coach, which sometimes causeth vomiting, come nearest to sailing; as does likewise our first exercise, the cradle. Sailing, then, is a compound exercise, of gestation, and that of a particular kind; a preternatural spasmodic motion in vomiting; and a singular action of air; which advantages no other exercise can, in so many and uncommon circumstances, lay claim to." Gilchrist adduces numerous cases in which patients of his went to sea suffering from spitting of blood, night-sweats, cough, and wasting, and regained their appetites and sleep and in some instances their weight when at sea. But it has been pointed out that the sea voyages on which he was able to send them were generally too short to produce lasting results. Nor would the modern physician recommend sea-sickness to a sufferer from pulmonary tuberculosis. Still, after making all allowances, it should be admitted that Gilchrist had really got hold of the root of the matter when he insisted on the therapeutic value in general of sea air and voyages. In this, as in his advocacy of the use of wine and bathing in fevers, he believed himself to be reviving the practice of the ancients.

"LIVE WIRE."

IT is worth while to note occasionally the changes in the amenities of the streets brought about by the applications of physical science, of which all are so proud. An occurrence in Sheffield a few days ago illustrates the fact that though we can harness electricity the harness sometimes gives way, when the passers-by have to beware. Three cars were passing along the street when one of the guard wires over the electric cables broke and fell across the "live" wire. The current passed through the fallen wire along the whole length of the guard wires which became "alive." Fusing took place at each junction and in a moment broken wires were falling in all directions. One guard wire, as if endued with diabolic intelligence, "curled across the road, and rising up snake fashion, coiled itself round a gas standard," cut a hole through the pipe, and in a second the gas was blazing furiously round the head of the lamp. All this adds to the dangers which may be encountered by those who have to walk along the streets either for business or pleasure, and although happily there were no casualties in Sheffield in consequence of the electricity getting a little of its own way, such an escape cannot be calculated on. So long as it is under control it is a servant with possibilities of usefulness perhaps scarcely dreamt of, but if control is lost it becomes an irresponsible power more to be dreaded than the most malignant jinn of an Eastern tale. Protection from the dangers of electricity has not kept pace with its increased application in the service of man and more thought and care should be given to safeguarding against its dangers. The overhead wires of the tram lines, besides disfiguring the streets, are a perpetual menace to the passers-by.

THE UNIVERSITY OF LONDON UNION SOCIETY.

THE University of London Union Society was duly formed on July 3rd last under the direction of the special committee of convocation and will hold its inaugural meeting to-day (Friday) at the University, South Kensington, at 8.30 P.M. On this occasion addresses will be delivered by the President, Sir Edward Busk, Vice-Chancellor of the University, Mr. Blake Odgers, K.C., and others. All graduates and undergraduates of the University of London (men or women) are eligible for membership. The annual subscription is 5*s.* for town members and 2*s.* for country members living beyond a 30 mile radius from London. The objects of the society are: (1) to hold debates; and (2) to maintain a library and reading and writing rooms. Any member may introduce not more than two friends to be present during a debate, but not to take part. The secretary is Mr. B. Whitehead, B.A., 2, Garden-court, Temple, E.C. Applications for membership or for further information should be made to one of the assistant secretaries—namely, either to Mr. D. W. H. Bell, B.A., 20, Maxey-road, Plumstead, or to Miss K. Bathurst, B.A., Royal Holloway College, Englefield Green, Surrey.

WE are authorised to state that the late Dr. Gustave Schorstein, whose death we announced in our issue of Nov. 24th, has by his will bequeathed £500 to the Regius Professor of Medicine at the University of Oxford for the Pathological Department of the Medical School, £500 to the London Hospital, and a sum which will probably amount to some £10,000 in trust to the University of Oxford, subject to certain life interests. When these are expired the capital is to be at the disposal of the University for use as that body shall think fit.

UNITED HOSPITALS CONFERENCE OF GREAT BRITAIN AND IRELAND.

THE United Hospitals Conference of Great Britain and Ireland was held at University College, Gower-street, London, on Dec. 6th, Sir WILLIAM S. CHURCH being in the chair.

Sir WILLIAM CHURCH said that all present had copies of what had been called the suggested model principles for hospital management. It was quite clear that the meeting would not make any progress if it were to go through the model principles clause by clause. He suggested that any remarks which anyone wished to make upon the model principles should be made in speaking to the motion which he called upon Sir Henry Burdett to move.

Sir HENRY BURDETT then proposed the following motion:—

That this conference of representatives and supporters of hospitals, medical practitioners, and others interested in hospital administration in Great Britain and Ireland, approves generally of the principles contained in the proposals drawn up by the joint hospitals committee and circulated to hospitals in August, 1906.

The proposals referred to in the motion were:—

SUGGESTED MODEL PRINCIPLES OF HOSPITAL MANAGEMENT.

1. That inability to pay for adequate treatment shall be the consideration for the admission of all patients for hospital treatment. This shall not apply to Poor-law cases.
2. That the production of subscribers' letters shall cease to be compulsory and that, where possible, the system shall be abolished.

3. That some means of investigation into the circumstances of the applicants for relief, by means of an almoner or other agent, shall be employed in all medical charities.

4. That the foregoing recommendations apply to both in- and out-patients.

5. That, except in emergencies, sufficient evidence shall be obtained on two points: (*a*) that the patient is not in a position to pay for adequate treatment; (*b*) that the case is, from a hospital point of view, suitable for treatment.

6. That all cases of serious accident and severe sudden illness shall be attended to on their first application, and, if deemed eligible for further treatment, shall be referred to the appropriate department of the hospital, but, if ineligible, shall then be referred for treatment elsewhere.

7. That all cases of trivial accident or illness deemed ineligible for the casualty department shall, after having been seen, be referred for treatment elsewhere.

8. That on the first visit no patient be permitted to leave a hospital without having been seen by a registered medical practitioner.

9. That where possible the number of new cases to be seen on any one day by an honorary medical officer shall be limited.

10. That special hospitals shall treat only those cases that come strictly within the scope of their work.

11. That in all hospitals there shall be an age-limit for the retirement of the medical officers.

12. That no scheme for the reform of out-patient departments can be successful without cooperation and coordination between hospitals themselves, especially those which operate in the same area.

13. That there is no objection to pay wards being connected with voluntary hospitals, provided that they are open to every member of the medical profession, who shall be paid any fee to be arranged by him and his patient.

14. That consultations shall, as far as possible, be encouraged in out-patient departments.

15. That all cases shall be seen by an almoner, and those not suitable for hospital treatment shall be referred in general terms to a medical practitioner, to a public medical service, an approved provident dispensary, or to the relieving officer under the Poor-law.

16. That there shall be a system of coördination between hospitals on the one hand, and public medical services and provident dispensaries on the other, so that the hospitals shall refer to the public medical services and provident dispensaries cases unsuitable for hospitable treatment (see paragraph 15 foregoing), and the public medical services and provident dispensaries shall refer to the hospitals cases for consultation, as well as those requiring hospital treatment and nursing, or specially suitable for purposes of clinical instruction.

17. That notices be posted in out-patient and casualty departments of hospitals calling attention to public medical services or approved provident dispensaries in the neighbourhood.

18. That a member of a public medical service or provident dispensary, or other patient referred to a hospital for consultation, with a private note or personally, by a general practitioner in attendance, should be referred back to such medical attendant with a statement of the opinion of the hospital physician or surgeon on the condition of the patient.

19. That cases of obvious destitution or cases already in receipt of Poor-law relief shall, after they have been once seen in the casualty or out-patient department, be referred to the Poor-law relieving officer, unless they should be retained for hospital treatment, and Poor-law patients may be referred to hospitals for consultation as in the case of public medical service and provident dispensary patients. In these cases payment might be required from the Poor-law guardians if deemed advisable.

COTTAGE HOSPITALS.

1. That as far as possible every patient in a cottage hospital have the right to be attended by his usual medical attendant.

2. That, except in cases of emergency, cottage hospitals be only open to those who are unable to secure adequate treatment at home.

3. That all persons admitted to cottage hospitals contribute where possible towards their maintenance.

4. That a certificate signed by a medical practitioner within the area be a sufficient recommendation for admission.

SELF-SUPPORTING PUBLIC NURSING HOMES.

1. That it is desirable that self-supporting public nursing homes should be established for patients who, being ineligible for the voluntary hospitals, are yet unable to pay the customary professional fees as well as the charges usually made in private nursing homes.

2. That the management should be vested in a committee on which the medical profession is adequately represented.

3. That no patient should be admitted without first producing a certificate of suitability for admission from a medical practitioner, who should whenever possible be the patient's usual medical attendant. If the signatory be not the patient's usual medical attendant, an explanation of the fact should be appended to the certificate.

4. That it shall be open to a patient to select any registered medical practitioner as his attendant.

5. That when the payment made by a patient is insufficient to cover the entire cost of maintenance, or when any question arises as to reduction or remission of fees for professional services, a statement of the financial circumstances necessitating such consideration shall be signed by the patient or near relative, countersigned by the usual medical attendant or some other responsible householder, and submitted to the committee.

Dr. F. M. POPE, who seconded the motion, discussed the matter from the point of view of the effect of hospital abuse on the income of the medical practitioner. The unchecked distribution of free medical relief took away his patients from the general practitioner and led the public to believe that medical advice need not be paid for. General practitioners found that their patients were leaving provident dispensaries and clubs in order to attend the out-patients' departments of hospitals.

Mr. HARBEN, the chairman of St. Mary's Hospital, said that it was a somewhat difficult task to extract the principles from the proposals submitted and that it was necessary to know how much they would commit themselves by general approval.

Mr. H. C. GOSNELL (City of London Lying-in Hospital) said that the motion was far from representing his feelings or those of the institution which he represented.

Dr. MORGAN DOCKRELL said that the suggested proposals had been over-weighted.

Dr. H. G. LYS (Royal Victoria Hospital, Bournemouth) moved an amendment altering the words in the motion "approves generally" to the words "welcomes the further consideration."

Dr. G. A. HERON having addressed the meeting, the motion was finally put to the meeting and carried as follows:—

That this conference of representatives and supporters of hospitals medical practitioners, and others interested in hospital administration in Great Britain and Ireland, welcomes the further consideration of the principles contained in the proposals drawn up by the joint hospitals committee and circulated to hospitals in August, 1906.

The following motion was proposed by Mr. HARBEN, seconded by Dr. J. A. MACDONALD, and carried:—

That it is advisable that an annual conference should be held.

The following proposition was moved by Mr. C. LUPTON, seconded by Dr. LAURISTON E. SHAW, and passed.

That a committee be appointed, not exceeding 15 in number, to act in conjunction with the hospitals committee of the British Medical Association, with instructions to communicate to all hospitals the resolutions of the present conference, to arrange for the holding of a conference in 1907, and in the interval to exhort hospitals and kindred institutions to carefully consider the principles laid before the meeting, and to deal with any other matters which may arise relating to the conference or to the objects thereof.

The following committee in accordance with the last resolution was then approved: Mr. Walter Baily, Sir Henry Burdett, Mr. W. G. Carnt, Mr. Neville Chamberlain, Mr. A. W. Davis, Sir Charles Gilman, the Hon. Sydney Holland, Sir Riley Lord, Mr. Charles Lupton, Mr. Herbert W. Mason, Colonel Montefiore, the Earl of Kilmorey, Mr. H. Mansfield, M.P., Mr. A. Napier, and Mr. W. A. Dinwiddie.

Dr. HERON proposed, and Mr. FIELDING JOHNSON (Leicester) seconded, the following motion, which was carried:—

That an appeal be made to hospitals to contribute towards the expenses of carrying on the work.

ECONOMIC PROBLEMS IN THE PRACTICE OF MEDICINE.

A DISCUSSION on the economic problems in the practice of medicine was held at 20, Hanover-square on Dec. 3rd, when the chair was taken by Dr. LAURISTON E. SHAW, President of the Marylebone division of the British Medical Association.

Sir R. DOUGLAS POWELL moved the following resolution:—

That it is desirable that concerted action should be taken to check the large amount of gratuitous medical attendance granted to many sections of the community, inasmuch as it tends to diminish the thrift and self-respect of the public, lessens the esteem in which medical science if held, and has a detrimental effect upon the position of many members of the medical profession.

He said that the difficulty seemed to him to be in the adjustment of the relationships between institutions such as hospitals and the practitioners who worked especially amongst that class from whom at the present time a certain considerable consignment of hospital patients were drawn. In a document on hospital reform sent round to the large hospitals a little while ago there were suggested certain model principles of hospital management. And the first principle laid down was that inability to pay for adequate treatment should be the consideration for the admission of all patients for hospital treatment, and that should not apply to Poor-law cases, but, he asked, what was adequate treatment? And how far were the lower, middle, and artisan classes able to secure adequate treatment outside large institutions such as hospitals? The medical profession was peculiar in one respect, that it had to deal with a commodity—health—which, however important to the individual, could not be said to have any current value. There had been one important advance in the last century in the direction of attaching a current or money value to health and loss of life—namely, the establishment of insurance societies, and, above all, of sick assurance societies. In the developments of sick assurance societies there was much to be hoped for in the way of

lessening gratuitous medical services. By its origin and tradition medicine was a calling and not a business, still less a trade, and it was to be seen if they could harmonise that idea with a measure of appreciation and support for those who practise medicine as a profession. When antiseptic methods of treatment and thorough cleansing and complete hospital hygiene were adopted, the mortality of those institutions became so low, cases were so well treated, and so humanely and gently handled that now patients of their own free will sought to enter hospitals. Further, so costly and complex was the modern treatment of many diseases, surgical especially, that it was difficult for persons of small means, who were yet perhaps above the indigent poor, to get adequate treatment, except in some institution, for many serious illnesses. At the present moment they tended to relegate the so-called indigent poor to workhouse infirmaries. They must either establish big provident hospitals or allow the present state of things to go on. For the adequate treatment of the lower middle class and artisan persons a considerable staff of visiting or district nurses was necessary and there were some depôts where dressings and appliances could be obtained at a reasonable rate. Similarly, there should be stores of some kind where drugs of the best quality could be obtained at a reasonable rate. These three essentials should be secured by combination between the provident dispensaries and sick assurance societies. With regard to the out-patient class, properly organised surgeries or provident dispensaries should be established where advice and remedies could be obtained at adequate fees which should secure for every patient thoroughness and care in treatment. But the public must also be educated to the necessity and duty of contributing a fraction of their earnings during their health for adequate medical treatment during their sickness. Some scheme could be evolved to constitute the first and most important step in that concerted action that was so desirable to lessen the large amount of gratuitous medical attendance granted to many sections of the community.

Sir JOHN TWEEDY, in seconding the motion, said that their duty was to relieve the sick person as quickly as possible and to administer charities in such a way that they should be for the maximum good of the sufferer and should be free as far as practicable from those evils which were universally found to be liable to attend indiscriminate charitable relief. The hospital system as at present administered tended to foster many of the evils which were found to attend indiscriminate almsgiving. There was a large proportion of persons living just about the level of poverty, and in that class sickness, if it was not more prevalent, was more incapacitating that in any other stratum of society. It was that class that the voluntary hospital was intended primarily to relieve. The pauper was already provided for by the State. He thought it ought to be possible in connexion with the great medical charities of this country, and of London in particular, to arrange a scheme by which the poorer classes should have the advantage without payment, or at a small rate of payment, which their more affluent fellows had in private work. There must be some system, probably of consultation at hospitals under the guarantee of members of the medical profession, and under the guarantee of the practitioners who would take charge of those cases away from the hospitals. Gratuitous medical attendance was harmful to the patients in large sections of the community, especially because it tended to diminish thrift and self-respect of the public. It was also harmful to the medical men who had to administer the medical relief. The medical men attached to the out-patient departments of large hospitals knew the weary drudgery of seeing crowds of patients two or three times a week and knew that those duties must necessarily be performed in a more or less perfunctory manner. And this routine kind of work had the further harmful effect of checking the growth of knowledge, for when patients had to be seen hurriedly and in large numbers it was utterly impossible to cultivate anything like a spirit of accuracy or clearness of thought and careful action. They should do what was possible to check the evils of indiscriminate medical relief and encourage all sections of the community above the pauper classes to make complete provision for ordinary illnesses such as come upon all households. It would be a surprise to many persons to know how few householders in London could be said to have a medical man; they relied upon the casual friendly help of the druggist in minor illnesses, or they at once went to a hospital for the more serious illnesses. The wage-earning classes ought to be encouraged to make complete provision for their minor ailments and to make partial provision for more serious and prolonged illnesses. That provision was to be made by some system of partial payments to the hospitals, to the staffs probably, and probably payments to the maintenance of the hospital, always under the guarantee of the medical practitioner who had charge of the case in the first instance. The other great object which he thought was desirable was to stop as far as they possibly could the unfair, unequal, and unjust competition of the out-patients' system of the hospital with the practitioners of the neighbouring places. That was a great evil, it was a moral evil to the profession, just as indiscriminate giving of medical relief was a moral evil to many of the patients themselves.

Dr. J. KINGSTON FOWLER said that it was perfectly useless to attempt to establish provident dispensaries in London so long as the out-patient door was as widely open as it was as present. He suggested that concerted action should be taken to approach the joint committees of King Edward's Hospital Fund, the Hospital Sunday Fund, and the Hospital Saturday Fund, and ask them to take up the out-patient question at hospitals and to exert pressure upon the hospitals, and then as the out-patient door was closed the door of the provident dispensary must be opened and in the course of time the out-patient department would become obsolete.

After speeches from Mr. M. D. EDER, Dr. WILLIAM HUNTER, Mr. HERBERT TANNER, Dr. G. A. HERON, Dr. J. H. KEAY, Dr. C. O. HAWTHORNE, Dr. R. H. SCANES SPICER, and Mr. H. W. ARMIT the motion was passed with one dissentient.

MEDICINE AND THE LAW.

Abortion Feloniously Induced by Diachylon.

UNDER the above heading a case was described in THE LANCET of August 11th, p. 387, in which a woman was convicted at Nottingham and sentenced to 18 months' hard labour for selling pills composed principally of diachylon to pregnant women with the result that abortion was procured. At Leicester, during the recent assizes, a woman named Turner was found guilty of a similar offence and was sentenced to 12 months' hard labour. In the Nottingham case the malpractices of the abortionist were brought to light through still-births reported by midwives to the medical officer of health being observed to be strangely frequent in a certain district and to be accompanied in many instances by symptoms of lead poisoning in the woman prematurely delivered. The case at Leicester is to be added to the other recent trials for the offence of procuring abortion referred to in THE LANCET of Dec. 8th, p. 1613, but deserves special comment on account of the employment of diachylon. It was not detected owing to the intervention of the medical officer of health upon the reports made by midwives, for the women in two instances in which abortion was proved to have occurred consulted the same medical man after it had taken place, and as marked symptoms of lead poisoning followed attention was naturally directed towards the discovery of a possible cause for their condition. In the Nottingham case the pills weighed from one and a half to five grains and consisted of diachylon in the proportion of from 50 to 70 per cent., combined with aloes and a coating of boric acid. At Leicester Mr. Bernard Dyer, D.Sc., to whom the pills sold to women were submitted for analysis, gave evidence that their average weight was eight and a half grains and that their principal ingredient was "a compound of lead and oil, having the character of ordinary lead plaster or diachylon," the amount of oxide of lead in each pill being about one grain. He also found in each pill about one and a half grains of nitrate of potassium from one to two grains of vegetable extractive matter (presumably aloes), and a trace of iron—probably what was left after the evaporation of a single drop of tincture of iron. In the Nottingham case very large quantities of the pills were taken accompanied by doses of Epsom salts, which were not given at Leicester, but at Leicester the prisoner handed to her victims from 60 to 80 pills at a time with orders to take four at night and the same number in the morning. The publicity given to prosecutions of this kind by trial in open court has the disadvantage that it enables a large number of the public of humble rank to become impressed with

the idea that a certain article easily obtained acts as an abortifacient. It is to be hoped that they are equally able to realise that diachylon used in quantities sufficient to promote the desired result will certainly make the woman who takes it very ill with unmistakeable symptoms of what she is suffering from, and that it is also quite likely to kill her. Medical men who find that abortion accompanied by lead poisoning is frequent in the districts where they practise should not hesitate to give such information to the police as will enable them to trace the abortifacient used to the source from which it is supplied.

Adams v. Clarke and Another—Clarke cit·d.

In this case a medical man, Charles Edward Adams, propounded a will under which he was residuary legatee. The relatives of the deceased, who pleaded that the will was not duly executed, that the deceased was not of sound testamentary mind, and did not know the contents of the will, lost on each count, and the judge, who expressed deep sympathy with the way in which Dr. Adams had been treated, pronounced for the will, costs following the event.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Dec. 13th, 1828.

On what are now called Gymnastic Exercises.

IT is a peculiarity, and indeed a misfortune, that there frequently arise among us persons who produce something that they say is new, and which they likewise say is important, because they hope to make money by it. To realize this important subject, they adopt some high-sounding names, which, in ancient times, have, in the Latin or Greek languages, been applied to some important matters that were known and practised in those countries; the terms which have been thus adopted they apply to their own contrivances, and say that these contrivances are the same as those of the ancient Greeks or Romans, which they pretend have been revived by themselves.

One of the most remarkable of these revivals, or rediscoveries, which has lately been pressed into notice, is what has been called gymnastic exercises. If they are to be believed who have endeavoured to get them universally adopted, they are not only a revival of the gymnastics of the ancient Greeks and Romans, but have, in themselves, the power of giving to the human figure every perfection of which Nature is susceptible, and to the mind many perfections which cannot be so easily obtained in any other way, besides many other good qualities, that it will require more time than ought to be so employed to enumerate. All this is absurd, and would be ridiculous, if it did not tend to produce, and had not really been productive, of much serious mischief.[1]

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8063 births and 4779 deaths were registered during the week ending Dec. 8th. The annual rate of mortality in these towns, which had been equal to 16·3 and 15·8 per 1000 in the two preceding weeks, was again 15·8 last week. During the first ten weeks of the current quarter the death-rate in these towns averaged 15·5 per 1000; the rate during the same period in London did not exceed 14·9 The lowest death-rates in the 76 towns during the week under notice were 7·2 in King's Norton, 7·7 in Walsall, 9·2 in Reading, and 9·3 in Southampton; the rates in the other towns ranged upwards to 22·1 in Bootle, 24·4 in Wigan, 25·6 in Rotherham, and 28·1 in Newport. The 4779 deaths in the 76 towns showed a further decrease of 20 from the numbers in the two preceding weeks and included 399 which were referred to the principal epidemic diseases, against 365 and 414 in the two previous weeks; of these, 121 resulted from measles, 82 from diphtheria, 62 from diarrhœa, 54 from whooping-cough, 40 from scarlet fever 37 from "fever" (principally enteric), and three from small-pox. The deaths from these epidemic diseases were equal to a mean annual rate of 1·3 per 1000 in the 76 towns; the rate did not exceed 1·0 in London. No death from any of these epidemic diseases was recorded last week in Bristol, Willesden, York, Ipswich, or in seven other of the 76 towns; the annual death-rates therefrom, however, ranged upwards in the other 65 towns to 4·3 in Rotherham, 4·5 in Warrington, 4·7 in Bootle, 5·6 in South Shields, and 6·3 in Oldham. The fatal cases of measles, which had been 121 and 114 in the two preceding weeks, rose again last week to 121; they caused an annual death-rate of 2·6 in Rotherham, 3·8 in Warrington, 4·0 in Bootle, 4·4 in Oldham, and 5·1 in South Shields. The 82 deaths referred to diphtheria showed a decline of seven from the high number returned in the previous week, but caused annual death-rates exceeding 1·0 per 1000 in Croydon, Sunderland, Wolverhampton, Halifax, Southampton, and Reading. The 62 fatal cases of diarrhœa were fewer than in any week since the beginning of June last, but were equal to an annual rate of 1·0 in Stockport, Halifax, and Middlesbrough. Whooping-cough caused the highest death-rates in Middlesbrough, East Ham, and Swansea, and scarlet fever caused 11 deaths in Manchester and four in Sheffield. The 37 deaths referred to "fever" showed a decline from recent weekly numbers; the three fatal cases returned in West Bromwich were, however, equal to an annual rate of 2·3 per 1000. Of the three fatal cases of small-pox two occurred in Hull and one in Devonport. No case of small-pox was under treatment in the Metropolitan Asylums Hospitals during the week, no case of this disease having been admitted thereto since the end of June. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 4144 and 4053 in the two preceding weeks, were 4062 at the end of the week under notice; 424 new cases were admitted to these hospitals during the week, against 467 and 401 in the two previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 312 in each of the two preceding weeks, rose last week to 345 but were 66 below the corrected average in the corresponding week of the last four years 1902–05. The causes of 47, or 1·0 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, and in 50 other of the 76 towns; the proportion of uncertified deaths, however, again showed a considerable proportional excess in Birmingham, Liverpool, St. Helens, Warrington, Rochdale, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 19·1 and 17·6 per 1000 in the two preceding weeks, rose again to 18·4 in the week ending Dec. 8th, and exceeded by 2·6 the mean rate during the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 12·0 and 15·5 in Paisley and Greenock to 22·7 in Perth and 24·0 in Leith. The 632 deaths in the eight towns showed an increase of 28 upon the number in the previous week and included 68 which were referred to the principal epidemic diseases, exceeding by seven the number returned in the previous week. These 68 deaths were equal to an annual rate of 2·0 per 1000, and exceeded by 0·7 the rate from the same diseases in the 76 English towns; they included 21 which were referred to diarrhœa, 17 to whooping-cough, 10 to measles, eight to "fever," six to scarlet fever, six to diphtheria, and not one to small-pox. The 21 deaths referred to diarrhœa showed a further slight decline from recent weekly numbers, and included 12 in Glasgow, three in Dundee, and two in Edinburgh and in Leith. The 17 fatal cases of whooping-cough showed a further slight increase; 12 occurred in Glasgow and three in Aberdeen. The ten deaths from measles, of which seven were returned in Aberdeen and two in Leith, were fewer than in recent weeks. Of the eight deaths referred to "fever" seven occurred in Glasgow, and included five certified as cerebro-spinal fever. Scarlet fever caused three deaths in Dundee and two in Glasgow, and diphtheria three in Glasgow and two in Leith. The deaths in the eight towns referred to

[1] Excerpt from "Lectures on Muscular Action, and on the Cure of Deformities. By Mr. Sheldrake."

diseases of the respiratory organs, including pneumonia, which had increased in the five preceding weeks from 94 to 145, declined again last week to 126, but exceeded by one the number returned in the corresponding week of last year. The causes of 16, or 2·5 per cent., of the deaths registered during the week were not certified; the mean proportion of uncertified deaths in the 76 English towns during the week did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 23·8 per 1000 in each of the two preceding weeks, declined to 22·4 in the week ending Dec. 8th. During the first ten weeks of the current quarter the death-rate in the city averaged 24·1 per 1000, the mean rate during the same period being only 14·9 in London and 15·6 in Edinburgh. The 163 deaths of Dublin residents during the week under notice showed a decline of ten from the number returned in each of the two preceding weeks; they included nine which were referred to the principal epidemic diseases, against 19 and 16 in the two preceding weeks. These nine deaths were equal to an annual rate of 1·2 per 1000, against 1·0 and 0·6 respectively from the same diseases in London and Edinburgh. The nine deaths in Dublin last week from these epidemic diseases included five from whooping-cough, two from measles, two from diarrhœa, and not one from scarlet fever, diphtheria, "fever," or small-pox. The fatal cases of whooping-cough showed a further increase upon recent weekly numbers, while the deaths from measles and diarrhœa had declined. Three inquest cases and one death from violence were registered; and 69, or 42·3 per cent., of the deaths occurred in public institutions. The causes of seven, or 4·3 per cent., of the deaths registered in the city during the week were not certified; the percentage of uncertified causes of death during the same week did not exceed 1·0 in London, while it was 3·8 in Edinburgh.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet Surgeon Charles Edward Geoghegan has been placed on the Retired List, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets (dated Dec. 9th, 1906).

The following appointments are notified:—Staff Surgeons: W. G. Westcott to the *Aboukir* and H. J. Chaytor to the *President*, additional, for temporary service at Yarmouth. Surgeon R. Thompson to the *Cambridge*, lent.

ROYAL ARMY MEDICAL CORPS.

Lieutenant Wilfred Parsons resigns his commission (dated Dec. 12th, 1906).

Lieutenant-Colonel R. H. Penton, D.S.O., is appointed Medical Inspector of Recruits, Northern Command, from Dec. 8th, vice Lieutenant-Colonel S. Westcott, C.M.G., under orders for service abroad. Major M. P. C. Holt., D.S.O., from Woolwich is appointed Assessor for the next examination in Military Surgery at the Senior Course.

AMERICAN OPINION ON THE VALUE OF RIFLE INSTRUCTION

Considerable discussion has been taking place in the United States as to the value of civilian rifle marksmen in war, and quite apart from any improvement in the general health or sense of public duty that might be confidently expected to accrue, there seems to be a strong feeling in favour of the encouragement of the practice. It is urged on the other side of the Atlantic that in the event of need there are thousands of men who are not at present interested in militia work who stand ready to take up a soldier's duty. The military training of such men is a necessity under any condition, but were they proficient in the art of rifle shooting one great point would be gained in the formation of a strong defence. The majority of the States are encouraging rifle shooting and this has caused increased enlistments rather than a falling off. A notable movement, it may be remarked, is taking place in London in training city boy-marksmen, and a serious effort is being made at organisation on a large scale. We understand that the favourable effect of an elementary military training and rifle practice, especially in connexion with occasional camp life, on the physique and brain of these lads is very observable.

BARRACKS REORGANISATION.

We notice that according to the *Standard* of Dec. 11th some further changes are in store for the Royal Engineers in consequence of the carrying out of the recommendations of Sir Evelyn Wood's committee on the reorganisation of the corps. It is understood that the whole of the barrack work will come under civil control, except that of a fortification type. It is fully intended to make all the sapper branches strictly combative and to free the corps from the incubus of purely civil work. This will presumably altogether divorce the Royal Engineers corps from having anything to do in future with the designing and construction of new barrack and hospital buildings for the army.

HYGIENE IN THE ARMY.

Commanding officers of units are directed to render reports to the Brigadier-General commanding the 8th Infantry Brigade, Devonport, not later than March 1st, 1907, giving the following information: The number of lectures on hygiene, stating the subjects; the names of the medical officers delivering the lectures; the average attendance at the lectures; and their opinion as to the usefulness of the lectures and the interest and attention which they have received, with any suggestions that they may have to offer regarding future courses.

NEW HOSPITAL AT TIDWORTH.

It is stated that the scheme for hospital accommodation at Tidworth has been approved and that a number of the buildings, including wards, will be available within a few months of the date of the commencement of work. The proposed accommodation provides a general hospital for 181 officers and men, a families' hospital for 31 women and children, and an infectious hospital.

Correspondence.

"Audi alteram partem."

GAS FIRES.

To the Editors of THE LANCET.

SIRS,—I have read with interest the report by the Coal Smoke Abatement Society on gas stoves which appeared in THE LANCET of Nov. 17th and particularly the part referring to hygienic considerations. The results obtained by the investigators are in many ways so different from those I obtained some years ago that I should like, with your permission, to discuss the matter in your columns. My results were published in 1900 in a pamphlet entitled "The Air of Rooms; an Examination of the Effect Produced on the Air of Rooms by the Use of Gas, Coal, and Electric Light for Heating and Lighting Purposes." This work was favourably noticed in THE LANCET of July 28th, 1900, and my attention was called to the similar work of THE LANCET Special Analytical Sanitary Commission which obtained results to a great extent in harmony with my own.

Some of the most important results I arrived at were the following. "1. That when a coal fire is in use for heating and the electric light for lighting an inhabited room, the air is purer than by any of the other plans tried for heating and lighting. 2. That when a coal fire is in use and an ordinary gas jet burning the air of the room is purer than when a gas fire is in use and an ordinary gas jet burning. 3. That of the methods of heating and lighting examined only a coal fire in conjunction with the use of the electric light keeps the carbon dioxide of the room below 10 parts in 10,000. (An inhabited room ought not to contain more than 13 parts of carbon dioxide in 10,000 of air.) The other methods give quantities of carbon dioxide varying from 14·5 to 31·7 parts in 10,000 of air. 4. That the humidity of a room (which ought to be between 70 and 80 degrees) is much diminished by the use of gas fires. The humidity results with a coal fire in use vary from 64 to 69, with a gas fire they vary from 57·4 to 59."

Let us compare with these the results of the investigation by the Coal Smoke Abatement Society and we shall see how very greatly they differ:—

A properly constructed gas stove, with a flue sufficiently large to carry away the products of combustion, although for constant work more costly than a coal fire, is quite as satisfactory from a hygienic point of view, and does not in any way vitiate the air of the room, nor does it produce any abnormal drying effect as is popularly supposed.

How are we to account for these conflicting statements? In the first place it seems to me the time spent in the investigation—one month—was far too short. In that time no fewer than 32 stoves were tested, each being in use for eight hours and apparently only one set of tests was made with each stove. I consider it neither fair to the stove nor to the test, to make a multitude of observations on the strength of *one* eight hours' experiment. Again, the rooms in which the tests were made were far too large. Each had a capacity of about 4000 cubic feet and in such large rooms any bad effect on the air is, of course, greatly diminished. Far more gas stoves are used in comparatively small rooms, and it is therefore important to know their effect on rooms of ordinary dimensions. The walls, too, of these rooms were of unplastered brick, an unusual condition in any ordinary room, and one which greatly increases the ventilating effect. It is not stated if persons occupied the rooms during the tests, a great omission, since it would affect the amount of carbon dioxide found in the air. The air of the rooms was examined for carbon dioxide, carbon monoxide, impurities which affect potassium permanganate, smell (if any) was noted, the humidity ascertained, and, lastly, the effect on musk plants which are said to be very sensitive to the fumes given off by gas fires. Let us examine these in order.

The carbon dioxide.—The amount found was small in most cases, due in part to the spacious room and to the ventilating effect of the unplastered brick already referred to. In the case of the stoves called "radiators" the amount of carbon dioxide rose to 15·5, 21, and "over 30" volumes in 10,000. Such stoves must therefore be absolutely condemned.

The carbon monoxide.—Traces of carbon monoxide were found in two cases, in another with a "radiator" in use 0·12 per cent. in the middle of the room and 0·03 per cent. over the hood. This amount would, of course, have been greater in a smaller room and it must be remembered that injurious results occur when the air contains 0·05 per cent. of this gas.

Impurities which affect potassium permanganate.—The examiners employed my modification of this test, but they admit it was rendered unsatisfactory by the amount of dust in the air of the building, which was unfinished and still in the contractors' hands.

The smell.—No smell was observed in 12 cases while the stoves were in use, but in 16 cases it varied from "very slight" to "strong and unpleasant" and "very bad." So it is admitted that the use of gas stoves produces in most cases an unpleasant smell.

Humidity.—The proper humidity of a room is usually considered to lie between 70 and 80. The examiners found it within these limits in 11 cases and beyond them in 20.

The musk plant test.—At the suggestion of Mr. S. A. Vasey of THE LANCET a young musk plant was placed in each room while the stoves were in use and its condition observed. That little reliance can be placed on this test is shown by the varied results given below—e.g., in one case with 5·6 volumes of carbon dioxide in the room and no smell, the plant is "dying," while with 16 volumes of carbon dioxide and a strong smell the plant is "fairly healthy."

Carbon dioxide in 10,000 parts.	Smell.	State of musk plant.
5·6	None.	Dying.
5·6	Slight.	"
6·0	None.	"
6·4	"	Fairly healthy.
6·4	Slight.	Dying.
6·6	None.	Nearly dead.
6·6	Slight.	Dying.
7·4	None.	Fairly healthy.
7·7	Slight.	Dying.
15·5	"	Fairly healthy.
18·0	Strong.	"
21·0	Bad.	Nearly dead.

On comparing the results of my own experiments, which were carried on for 15 months, with this month's trial of 32 stoves, it will be seen that entirely different results were obtained. It is important to decide which is correct, and I hope the Coal Smoke Abatement Society will continue its experiments, but in ordinary-sized rooms with plastered walls and with far more tests of each stove. Further, when sufficient tests have been taken the stoves should be replaced by coal fires and similar tests made of the air of the room. If this be done I am confident that it will be found that the air is purer, less dry, and in every way better with a coal fire in use.

No doubt the universal use of gas stoves would do much to lessen the smoke nuisance, which I detest as keenly as the members of the Coal Smoke Abatement Society, but it will be worse than useless if this is accomplished by a method which renders the air of our dwellings less pure than with the coal fire in use. It must not be forgotten that most people spend the greater proportion of their time inside and not outside; hence the supreme importance of keeping the air in the dwelling-house as pure as possible.

I am, Sirs, yours faithfully,
FRANCIS JONES, M.Sc., F.R.S.E.

Manchester, Dec. 7th, 1906.

SOME CONSIDERATIONS CONCERNING MENSTRUATION.

To the Editors of THE LANCET.

SIRS,—In the *Journal of Anatomy and Physiology*, Vol. XXI. 1887, and again in the *New York Medical Journal* of August 11th, 1906, I endeavoured to show that menstruation was neither a manifestation nor yet an association of any process of denudation of the uterine mucosa, and as further evidence of my tenet let me now adduce what obtains in cases of chronic inversion of the uterus. It happens occasionally, and especially at the time of, or soon after, parturition, that the uterus becomes turned more or less completely inside out. If the symptoms resulting from this accident are trivial the disorder may escape immediate attention and undetected it may persist for years. In such untoward circumstances, as I have myself observed, the menstrual function may be more or less periodically displayed, although the discharge correlated therewith is invariably somewhat excessive and is apt to recur more frequently than hitherto was its wont. It may be remarked that during the intermenstrual period there transudes from the extroverted endometrium a serous fluid which is commonly tinged with blood. This discharge is essentially a filtrate and it is caused by the very turgescent state of the uterine structure generally. The turgor is dependent upon an interference with the nerve and vascular states of the organ, and so pronounced may this become that gangrene may set it. On this account I had some time ago to extirpate the entire uterus in a case of chronic inversion associated with a small submucous fibroid located at the fundus. Anæmia is commonly noted in cases of chronic inversion of the uterus and, I attribute this condition to the more or less constant exudation of serum from the endometrium rather than to the menstrual losses, even although these are usually excessive.

In ordinary circumstances there exists between the substance of the uterus and its peritoneal envelope a mutual tension, a tension which is largely accountable for the natural inclination of the organ. Virtually, the serous covering is too small, and the circumscribed structure is thereby restrained and compressed. When, however, the uterus is turned inside out the tissue tension is reversed, and the strain hitherto borne naturally by the endothelial covering is now in an aggravated form imposed upon the epithelial lining. So stretched and extended may the latter structure become that the cells of which it is composed may lose their cubical shape and present the characters of an ordinary pavement epithelium. A uterus thus abnormally circumstanced may, as I have already remarked, continue to display the phenomenon of menstruation. The promulgators and supporters of the denudation theory of menstruation assert that month after month there is a disintegration of blood-vessels, that the mucosa to a greater or less depth undergoes an amyloid or hyaline degeneration, and that blood is extravasated into the latter structure. It is affirmed still further that immediately these transformations are sufficiently advanced the epithelium breaks down and a greater or less amount of the mucosa, with débris composed partially of broken-down vessels, is cast away. If there were this wholesale destruction of tissues in association with menstruation it is impossible to believe that regeneration of the entire epithelial coat, and of a greater or less portion of the mucosa, as well as the formation of new blood-vessels, could take place in an organ so abnormally stretched as the

uterus is when completely inverted. What happens, however, in inversion and in hæmatometra, when in consequence of an imperforate hymen or cervix the uterus becomes greatly distended by retained menstrual fluid, is, I affirm, quite consonant with a secretory theory of menstruation.

I am, Sirs, yours faithfully,

JAMES OLIVER, M.D. Edin., F.R.S. Edin., F.L.S.,
Physician to the Hospital for Women, Soho square.

SCARLET FEVER MORTALITY AND HOSPITAL ISOLATION.

To the Editors of THE LANCET.

SIRS,—I have read with interest and no little astonishment an article in THE LANCET of Dec. 1st, p. 1528, under the above heading. The writer begins by giving the gross scarlet fever mortality figures per 1,000,000 for England and Wales for the decennia 1861–70, 1871–80, 1881–90, 1891–1900, and the quinquennium 1901–05. These figures are 971, 719, 338, 158, and 126 respectively. With them he compares the London scarlet fever mortality figures for the same periods—namely, 1133, 600, 335, 188, and 105. After stating that in London the percentage of hospital admissions to notifications has risen from 42·8 in 1890 to 88·6 in 1905, he proceeds:—

> While it is impossible to attribute the whole of the recent decline in the fatality (*sic*) of scarlet fever in England and Wales to the increase of systematic isolation of cases of the disease it is also impossible to ignore the beneficial effect of this important factor in public health administration, having special regard to the exceptional decline in London where hospital isolation has been so successfully developed under the Metropolitan Asylums Board.

This sentence can only mean that the marked fall in scarlet fever mortality since 1870 has been partially due to the introduction of hospital isolation and that this conclusion is supported by the "exceptional decline" in the London mortality.

Now, no systematic isolation or anything approaching systematic isolation of scarlet fever was practised in either England and Wales or London till after the report of the Royal Commission in 1882; it was not till 1887 that any large general use was made of the Metropolitan Asylums Board hospitals and in most parts of the country the fashion of isolating on a large scale began even later, for the Compulsory Notification Act was not passed till 1889. We may, then, exclude "systematic isolation" from exercising any influence during the first three of the decennia mentioned, when the mortality for England and Wales had declined to a third and that of London to nearly a quarter of its original bulk. It is a well-established historical fact, for which a dozen references could be supplied if space allowed, that the virulence of scarlet fever after a series of epidemic years naturally declines to a point when the disease becomes a mere trifling ailment, fatal only through the *nimia medici diligentia*. Such a succession of epidemic years were 1863, 1864, 1868, 1869, and 1870, and barring 1874 scarlet fever has steadily declined in intensity since. What influence "systematic isolation" has had on this process is certainly not shown in the figures your writer quotes and the mortality figures for London approach as closely to those for the rest of the country as it is possible for figures to approach. In the words of a recent Irish writer, they are "comparatively identical."

But putting aside that view of the question, I confess to being absolutely at a loss to conceive what relationship can possibly be traced between these gross mortality figures and systematic isolation, except on the presumption that the hospital treatment of scarlet fever is vastly more successful than home treatment. No such claim has ever, or could ever, be made by any instructed person. I happen to have by me some figures which I once calculated for the comparison of five consecutive years for home and hospital treatment of scarlet fever in London; they are as follows:—

Year.	Hospital case mortality.	Home case mortality.
1898	4·11	1·51
1899	2·51	1·01
1900	2·99	1·43
1901	3·73	1·08
1902	3·53	1·28

There is a certain selection acting against the hospital, of course, but I think it may fairly be claimed that these figures show that hospital treatment does not show any marked superiority over home treatment. If that plea goes by the board, the contention that gross scarlet fever mortality and systematic isolation have any relation to one another is reduced to the level of Mr. Stephen Coleridge's argument that antitoxin is a very bad thing because ever since its introduction in 1894 the gross diphtheria mortality has steadily gone up. Systematic isolation was introduced to diminish the incidence of scarlet fever on the community, and your writer himself says: "The statistics quoted above seem to suggest that ..... its prevalence does not appear to have declined notably." That is unfortunately the fact, and its recognition and acknowledgment by the profession cannot be too frank and free. As to systematic isolation having reduced scarlet fever mortality, it is but another instance of the principle so admirably laid down by Sir Samuel Wilks: "All remedies act well when the patient begins to get better."

I am, Sirs, yours faithfully,

Outer Temple, W.C., Dec. 1st, 1906. HUBERT E. J. BISS.

*** The main purpose of the annotation to which our correspondent refers was rather to point out that the influence of hospital isolation on the proportional prevalence and fatality of epidemic diseases is still an interesting problem of public health organisation than to insist upon the degree in which this isolation has been a beneficial factor in the recent remarkable decline in the English death-rate from scarlet fever. At the same time we find it impossible, in view of this decline in the fatality of scarlet fever, side by side with the absence of any similar decline in the fatality of measles or of whooping-cough, which have not been subjected to isolation, to agree with our correspondent in the opinion which he appears to hold on the value of isolation. The most obvious advantage of isolation is to check distribution of disease and thus to reduce the number of cases and consequently of fatal cases, a fact that our correspondent, in his letter, appears to lose sight of. The question of the relative case-mortality under hospital and home treatment was not raised in our annotation, simply because satisfactory statistics for a decision on this point are not available and appear to be impossible of attainment.—ED. L.

AMYL NITRITE IN HÆMOPTYSIS.

To the Editors of THE LANCET.

SIRS,—The note of Dr. Francis Hare in THE LANCET of Nov. 24th, p. 1435, inspires me to cite my observations respecting amyl nitrite. My experience with the drug, extending over a period of about five years, justifies me in concluding that it is the most efficient and expeditious remedy we possess in the treatment of hæmoptysis. In a number of instances it failed to influence the hæmorrhage, yet for uniformity of action it is without a rival in this condition. Unless the drug was efficacious after the first administration subsequent inhalations did no good. Unless sufficient of the drug is inhaled to induce the *physiologic action* no therapeutic results should be expected. It is for the latter reason that so many drugs have been relegated to oblivion. The action of the remedy in question is best determined by a study of the nasal mucosa as a centre for the discharge of reflexes. In a contribution, "Heretofore Undescribed Neuroses of the Lungs,"[1] I stated the premisses upon which my conclusions were formulated. The first proposition was that there are conditions of nasal reflex genesis manifested by dilatation and contraction of the lungs. Second, that the pulmonary neurosis of dilatation can be invoked in every healthy individual by irritation of the nasal mucosa. At that time it was maintained that the vagus contained fibres which could dilate or contract the bronchi, which proposition was demonstrated several years later by the researches of Dixon and Brodie. If after having cocainised the nasal mucosa and then painting the latter with any of the antispasmodics—notably, opium, hyoscyamus, or belladonna—it will be noted that after a few minutes the normal lung resonance on percussion will be translated into dulness and in some chest regions a flat percussion note is elicited (lung reflex of contraction). Employed without previous cocainisation the antispasmodics

[1] New York Medical Journal, June 13th, 1896.

induce only the counter reflex of lung dilatation. Inhalations of amyl nitrite, as I have shown elsewhere,[2] induce the same lung reflex of contraction. This lung contraction is most pronounced in the vicinity of the manubrium sterni and is at once dissipated by tapping the epigastrium which induces the counter reflex of lung dilatation. It is my belief that the action of amyl nitrite in hæmoptysis is due essentially to an irritation of the broncho-constrictor fibres of the vagus which, acting on the bronchial musculature, causes the latter to express the blood from the lungs in a manner similar to that when water is squeezed from a sponge. The blood pressure factor in explanation of the action of the drug I do not believe adequate. Our knowledge of the mutual relations of pressure in the aorta and in the pulmonary artery, under varying conditions according to Bradford, is still very imperfect. Brodie and Dixon show, however, that drugs which augment the peripheral blood pressure by vaso-constriction increase the quantity of blood in the lung. Clinicians have unreservedly accepted the dictum of the physiologist, that the nitrites lower the blood pressure. The latter fact may be true with toxic doses, but I have shown elsewhere[3] that the inhalation of amyl nitrite to secure its physiologic action will in the norm primarily cause the blood pressure to fall but that the systolic pressure at once rises to from 10 to 30 millimetres.

I am, Sirs, yours faithfully,

Paris, Nov. 29th, 1906. DR. ALBERT ABRAMS.

PRESERVED IMPORTED FOODS IN MANCHESTER.

To the Editors of THE LANCET.

SIRS,—I notice that you have done me the honour of referring in the last issue of THE LANCET to a report on preserved imported foods and you conclude by saying: "These results are interesting but the number of samples examined is hardly sufficient to enable a general conclusion to be made." Permit me to attract the attention of your readers to the fact that as far as I am concerned the only conclusion I had arrived at is given at p. 3 of the report, where I say: "*To obtain an accurate idea of the care which is taken by various manufacturers in the preparation of canned foods*, it would be necessary to inspect consignments *on their arrival into this country* before the cans have been sorted by the consignees" (the italics are in the report). In the same page I also point out that the report is of a preliminary character and that "it appeared to me that before reducing the examination of these foods to simple routine tests it would be desirable to analyse thoroughly some of the first samples of each kind sent to the laboratory." In issuing the report the markets committee have, on their own responsibility and without my knowledge, added some remarks of the veterinary inspector; this was obviously the result of an oversight, for the investigation had been left entirely in my charge without any other instruction than to do what I thought desirable with this first set of samples sent to the laboratory. As I agree with your criticism regarding the conclusions appended to the report this letter may appear superfluous, yet I feel it necessary on account of the responsible position which I hold to dispel the idea that I am guilty of making sweeping assertions without adequate evidence.

Believe me, Sirs, yours very truly,

SHERIDAN DELÉPINE.

Public Health Laboratory, Manchester, Dec. 10th, 1906.

FATALITIES UNDER ETHYL CHLORIDE.

To the Editors of THE LANCET.

SIRS,—I have read Mr. Carter Braine's and Dr. J. B. Simpson's letters on the above subject with much interest. Dr. Simpson's views as a general practitioner of great experience are particularly interesting to me and I am sure there are scores of highly intelligent enterprising men placed like he is, who will absolutely confirm what he says. I constantly have the privilege of meeting such men who come up to town with cases, and on inquiry find in every second case at any rate, the doctor is using ethyl chloride daily with great satisfaction and finding it safer and more convenient than chloroform for minor operations. The fact that it is unnecessary to call in the assistance of a neighbouring opponent to give chloroform not being the least advantage! As regards *statistics*, these are notoriously misleading. Mr. Braine's reading of my letter of Nov. 24th, is painfully literal, and, to my mind, his remarks are unduly scathing. I will not even plead that my figures are approximately correct; they may be 10,000, nay 50,000, one way or the other, but my argument none the less holds good—viz., that ethyl chloride is, on the whole, a very safe and reliable anæsthetic—a very valuable one for the country doctor, as Dr. Simpson clearly shows—and that there is not the slightest occasion to ban the drug and put it outside the country doctor's or anæsthetist's armamentarium as some would have us do. I have not had the pleasure of seeing my friend Mr. Braine for some time past and cannot therefore say whether he is among that number or not, I can only have a suspicion that this is the case.

But, Sirs, let me submit in self defence the following facts for the consideration of your many readers. 1. Ethyl chloride like no other anæsthetic is given in absolutely definite doses (or should be), varying from three to five cubic centimetres. With this, in a definite time, almost as definite results in the vast majority of subjects are obtained. I have a friend who has experience of some 15,000 cases in dental surgery (who has notes of them, moreover), and I doubt if his average dosage amounts to four cubic centimetres. Since I began to use ethyl chloride I find from my books I have used close on 200 cylinders, varying from 50 to 60 cubic centimetres capacity, mostly the latter. Therefore my dosage over four years (for approximately 2500 cases) has averaged five cubic centimetres. I have no doubt many other workers have had similar experience. 2. Ethyl chloride is not used for any other purposes than those of general anæsthesia or local anæsthesia, unless I am much mistaken; and the large bulk of it, about 75 per cent. or more, is used for the former. 3 None of the cylinders which I have seen of recent years leak. Great trouble was caused at first, certainly, on this account, but it has been overcome and with the *fixed* in stoppers as now supplied we do not get leakage. 4. I do not think breakages can be fairly considered as counting for much. In four years, during which I have daily used ethyl chloride, I have personally only broken two cylinders. 5. Stocks held by chemists' depôts and wholesalers are not large. I inquired of the largest depôt of this nature in Scotland and was told that they never had more than about three dozen cylinders in hand at one time. There is no object in carrying a large stock, since cylinders can always be obtained at short notice direct from the makers, or in case of kélène the distributing agents, Messrs. Greeff and Co.

On the whole, therefore, I have some amount of definite material to go on and I fail to see how my conclusions are so "fallacious, inaccurate, and valueless," as Mr. Braine would have them. I further fail to see why statistics based on the work of hospitals would be more "scientific." Quite as much, possibly more, ethyl chloride is given outside hospitals than in them. Further, are our mortality figures in regard to other anæsthetics any more accurate, and can some of those given even pretend to be approximate? I have one text-book of anæsthetics before me in which the mortality of chloroform is varyingly given by different observers as from 1 in 2500 to 1 in 11,000. From material which I have in my possession I believe it to be nearer 1 in 1000.

Figures in regard to ether are even more misleading. In the United States of America they will tell you that the mortality is only 1 in 40,000 (see "International Text-book of Surgery," Gould and Warren, vol. ii., pp. 446–47). In this country other men will put it at nearer 1 in 5000. Of the mortality under nitrous oxide it is quite impossible to form anything more than the wildest estimate. In regard to these three anæsthetics any such calculation as I have made in regard to ethyl chloride would indeed be quite futile and valueless. Both ether and chloroform are used for dispensing purposes and the quantity of all three used in any individual anæsthesia varies as much as the size of a pebble on the beach and a good deal more. My method of endeavouring to arrive at an approximate relative estimation of the mortality rate under ethyl chloride may be novel and unusual, but I think it will at least bring home to your readers that the frequency with which ethyl chloride has been used during the past four years has been very great, far greater than any of them realise, perhaps, and in spite of

[2] American Medicine, Jan. 3rd, 1903.

[3] Clinical Measurement of Blood Pressure, American Journal of the Medical Sciences, November, 1904.

20 fatalities under this anæsthetic in Great Britain the mortality rate is exceedingly low—so low, indeed, as to place ethyl chloride next in degree of safety to nitrous oxide.

If I concede Mr. Braine a very liberal deduction from my figures on the scores he mentions, my point will still hold. On going more closely into the matter I find that far from over-estimating the consumption of ethyl chloride for general anæsthetic purposes I have greatly under-estimated it. The combined output in this country for Messrs. Duncan and Flockhart and the Dr. Bengue Company alone equals, on the five cubic centimetre basis, no less than 2,750,000 administration during the past three years and Messrs. Duncan and Flockhart inform me that not 1 per cent. of their product is used for local anæsthesia. 99 per cent. are sent out with wide-bore nozzles which are quite unsuitable for this purpose. At the moment of writing I am awaiting actual figures from Messrs. Kuhn, Hedley, and Company and the Kélène Company.

I am, Sirs, yours faithfully,

Edinburgh, Dec. 9th, 1906. THOMAS D. LUKE.

THE ADMISSION OF WOMEN TO THE DIPLOMAS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editors of THE LANCET.

SIRS,—As the mover of the amendment which was carried—"That a poll of the Fellows and Members be taken"—permit me to state quite frankly that my sole object in proposing the above amendment was to have an answer to the question, "Should women be admitted to the Membership of the College?" put upon a firm basis and not leave it to any hole-and-corner possibility. If, as Mr. F. G. Parsons suggests, the whole matter be discussed, either at the College or in the press, I fear that you, Sirs, will have to publish many special editions of your valuable journal. I would wish respectfully to point out to Mr. Parsons that the subject is not by any means a new one; the eternal female question has now been before the profession in a more or less acute form ever since I can remember, and I am now in my seventh decade, so that if the profession does not know the *pros* and *cons* their mental calibre is of a very much inferior capacity than I take it to be. So far as a degree is concerned I quite agree with Mr. Parsons that "most medical women take the London M.B. or M.D. degree at present and find no difficulty in doing so." It is, in fact, an easy thing for anyone to take the degree, given, money, time, and application. The true difficulty is to know what to do with the degree when you have got it.

Looking at the question from a competitive point of view Mr. Parsons says: "If the Membership of the College were open to them there is no doubt that many who take the M.B. and eventually the M.D. Lond. would content themselves with the M.R.C.S. and L.R.C.P." With this part of Mr. Parsons's contention I quite agree, but with what follows I do not agree—viz.: "It is easier to compete with the holders of a diploma than with the holders of a degree." This is shown by the statistics of the army and navy and other examinations to be entirely fallacious, as the figures are all in favour of the M.R.C.S. and L.R.C.P. diplomates, and in the battle for life the same practical result is very frequently demonstrated. I myself took a degree many years after a diploma, but I have not yet found it lessen the competition one iota. Finally, Mr. Parsons says: "I for one should be pleased to learn, What are the real objections to the admission of women" as Members of the Royal College of Surgeons of England?

My own answers are: (1) they are not admitted to the Church; (2) they are not admitted to the Bar; (3) they are not admitted to the Royal College of Physicians of London; (4) they have been refused admission to the Membership of the Royal College of Surgeons of England already by a unanimous vote of the Members; (5) the competition from even *their own sex* is already simply disgraceful in certain parts of London and elsewhere; (6) there are already far too many portals open to women; and (7) if there had been complete unanimity and combination within the ranks of our profession, which there is not, my own belief is that women would never have been allowed to enter the profession of medicine at all, much less that of surgery.

It is somewhat satisfactory to get at a slight glimpse of the truth. Members of the College will please note that women are anxious to obtain a mere licence to practise instead of a degree, in order that men may more easily compete with women. My own impression was that women gained an entrance to our profession in order that they might attend their suffering sisters in India. Another eastern fabrication, but not Chinese this time.

I am, Sirs, yours faithfully

Putney, S.W., Dec. 10th, 1906. A. S. MORTON, M.D. Durh.

ANTIVACCINATION TACTICS.

To the Editors of THE LANCET.

SIRS,—May we acknowledge and thank you for your courtesy in publishing our letter upon Antivaccination Tactics?[1] In this letter, through a typographic error, we have unwittingly conveyed the impression that the abstracts in the brochure referred to were from two separate articles, when, as a matter of fact, there was but one article published in the *Cleveland Medical Journal*. This fact in no way mitigates the violation of the conditions under which permission for publication of these extracts was granted. In the interest of truth the following statistics may be given, as they serve to undo the fallacy of the claim as to the potency of formaldehyde disinfection, also the mischief done by Dr. Friedrich's paper, and establish beyond dispute the efficacy of vaccination in the prevention of small pox.

Small pox in Cleveland, Ohio, from 1898 to 1906.

Year.	Number of cases.	Deaths.
1898	48	0
1899	475	3
1900	993	16
1901	1230	20
1902	1298	224*
1903	106	22
1904	42	0
1905	0	0

* General vaccination instituted in September.

The epidemic of 1901 was "a mild, slightly contagious disease, which left no marks and seldom proved fatal" (Dr. Friedrich). The health officer took charge at the fag-end of this epidemic and complacently published the proclamation, "the death-blow to this epidemic was dealt by formaldehyde"! (Dr. Friedrich). Following this supposed new discovery came the virulent epidemic of 1902 with its appalling fatality. Through "the prompt and vigorous initiative of the physicians and the intelligent energy of their lay coadjutors" (Dr. Handerson's Report) 195,000 individuals were vaccinated. The epidemic outbreaks of small-pox, which had been recurring since 1898 and which, despite the campaign of disinfection in 1901, had reached a climax in 1902, were brought to a halt so suddenly after the wholesale vaccination that for the past two years the city has been absolutely free from this disease.

Yours very truly,

THE CLEVELAND MEDICAL JOURNAL COMPANY.
EDWARD PERKINS CARTER,
Editor and Manager.

SPLENOMEGALIC POLYCYTHÆMIA.

To the Editors of THE LANCET.

SIRS,—In regard to Dr. J. W. Russell's letter printed in THE LANCET of Dec. 8th, p. 1623, I must admit the justice of his claim. I may, however, add that in my paper published in THE LANCET of May 13th, 1905, p. 1254 (to which that in THE LANCET of Nov. 24th, 1906, p. 1433 was only a further note), I duly referred to the communication of Dr. Saundby and Dr. Russell—that is to say, to Dr. Russell's paper.

I am, Sirs, yours faithfully,

Harley-street, W., Dec. 8th, 1906. F. PARKES WEBER.

"PRODROMATA."

To the Editors of THE LANCET.

SIRS,—The discussion of the word "prodromata," which occurs in THE LANCET of Nov. 10th, p. 1304, is most interesting. I cannot, however, agree with Sir William R. Gowers that "prodrome" (plural, prodromes) has been used but upon a few occasions a long time ago. It is a word constantly heard here in America and is to be found defined

[1] THE LANCET, Oct. 13th, 1906, p. 1026.

in the dictionaries of Lippincott—a work which I am revising at the present time—Dorland, Dunglison, Foster, Gould, Billings, &c. As further examples of the use of prodromata see W. Aitken's "Science and Practice of Medicine," "Index Medicus" (1904) and "Index Catalogue" (Vol. XI.). It should also be remembered in this connexion that the German word is "prodrom" and the French, "prodrome." The double plural as seen in "prodromata" is by no means an isolated instance in the English language; thus, in children we have both the *er* and *en* plural. I agree with Professor Allbutt that the word "forerunner" is an excellent word, and the same is to be said about the German "Vorläufer," the French "avant-coureur," and other similar words in the different languages. Personally, I am very glad to have Sir William R. Gowers's authority for the use of "auras" instead of "auræ."

I am, Sirs, yours faithfully,
HENRY W. CATTELL.

Philadelphia, Pennsylvania, Nov. 20th, 1906.

A MEMORIAL TO CHRISTOPHER HEATH

To the Editors of THE LANCET.

SIRS,—I would ask the hospitality of your columns to make known to University College Hospital men who were pupils or house surgeons to the late Mr. Christopher Heath that we are proposing to erect a memorial to him in the new school buildings. The memorial would take the form of a medallion portrait, and, if funds sufficed, a prize in surgery bearing his name would be established. Subscriptions are to be sent to me at University College Hospital.

I am, Sirs, yours faithfully,
SIDNEY MARTIN,
Dean of the Medical School.

Mansfield-street, W., Dec. 8th, 1906.

THE STUDY OF THE STREPTOCOCCI PATHOGENIC IN MAN.

To the Editors of THE LANCET.

SIRS,—We thank Dr. Andrewes and Dr. Horder for their answer and assure them that any wrong impression that might have arisen from their paper has been removed by their letter. With regards to their conclusions we neither had a right nor desire to take offence. If we have distorted any of the facts in their paper to our own advantage it was unintentional. Probably less than they do we desire to enter into a controversy upon the causation of rheumatic fever, for their "criticism" of the diplococcus was obviously the first step. It is, then, in no controversial spirit but in one of justice to ourselves that we decline to accept the impression given in their letter. Our position does not, we maintain, hinge largely upon the specificity of the diplococcus.

In our writings we have made two "*assertions*": (1) a diplococcus is a cause of rheumatic fever; (2) there is a group of cases of malignant endocarditis rheumatic in nature. Later we gave as our "*opinion*" that the diplococcus is *the* bacterial cause of rheumatic fever, because it was the only organism we repeatedly found and the only one which to our knowledge has fulfilled Koch's postulates.

Our contention has been that rheumatic fever is a specific disease and that the only proven bacterial cause must then probably have specific characters and is specific in the sense that it causes a specific disease. We have never relied solely upon the production of a non-suppurative polyarthritis and endocarditis in rabbits, and our animal experiments have never been uncontrolled by other means of research. In passing we may mention that monkeys as Dr. Vernon Shaw has shown with our cultures are susceptible, and there has accordingly been no need for us to rely upon rabbits solely. We have never claimed the experimental results as "specific," but only when taken with other factors considered them as highly suggestive. Menzer and Cole's researches only prove that there are various causes of arthritis and endocarditis, a fact of which we were well aware, and this, we would point out, applies equally to man.

We have ourselves made investigations with the pneumococcus and streptococcus so-called pyogenes and staphylococcus, and one of us with Dr. Shaw has studied mixed infections. In our experience the streptococcus pyogenes does not *naturally* cause death from septicæmia in rabbits, but just as in man may sometimes produce arthritis and endocarditis. In our opinion, if all the facts with regard to the diplococcus are taken together it is possible to recognise it when taken from the human body. More than six years ago[1] we showed that this micro-organism was present in the saliva and throat and proved that it caused infection through the tonsil; nevertheless, we do not think that the streptococcus salivarius is either a good or helpful name.

We are, Sirs, yours faithfully,
F. J. POYNTON,
ALEXANDER PAINE.

A NEW LIMITED LIABILITY COMPANY AND A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—My attention has been called to the prospectus of the British Orchid and Nursery Company (Cowan), Limited, in which the name of J. Hamilton Hart, physician and surgeon, appears as one of the directors. As I am the only J. Hamilton Hart on the Medical Register I hereby state that I have no connexion with, or knowledge of, the above company, and I shall be obliged if you will publish this disclaimer in your next issue.

I am, Sirs, yours faithfully,
J. HAMILTON HART, M.R.C.S. Eng., L.R.C.P. Lond.

Walton, Suffolk, Dec. 10th, 1906.

*** It seems to us that Mr. Hart has a right to an immediate explanation of this occurrence. We have verified his statement that he is the only gentleman of his name upon the Medical Register.—ED. L.

THE ROYAL NAVY MEDICAL SERVICE.

To the Editors of THE LANCET.

SIRS,—Having recently resigned the commission of surgeon in the navy I have read with great interest the address by Sir Lambert Ormsby on the position of that service. I have also read the criticism of that address published as a leading article in THE LANCET of Nov. 17th, p 1375. So far as my experience goes I am in complete accord with the statements of Sir Lambert Ormsby and not with those of the criticism. In the latter it is said that appointments must be made in this service for ascertained ability and that therefore a roster for foreign service would not be applicable. I think that many of the appointments are made by one of the sea lords who can have but little knowledge of a medical man's ability. Then influence undoubtedly has effect in obtaining good appointments for medical officers. Some medical officers hold good shore appointments in England year after year and never go abroad, yet they do not appear to be more able than others. Anyhow, their names are not specially known in the world. The criticism says that when a medical officer goes ashore on duty he has, as a rule, a special boat to himself. I can well remember on several occasions when going ashore on duty to obtain pratique for the ship having to share a boat with the Maltese messman who was going to buy vegetables. The captain and commander can always have boats to themselves when going ashore on leave whenever they like; but the fleet-surgeon must go at certain times with the midshipmen and warrant officers. In the matter of cabins the gunnery and torpedo lieutenants are always given better labelled cabins than the fleet-surgeon. Even the flag lieutenant and the captain's domestic are given a better cabin than the fleet-surgeon or surgeon. In every ship I have been in the captain's valet was given one of the best cabins—namely, that outside the captain's cabin, while the surgeon had to live on the deck below. The medical officer, whatever his rank may be, is always a junior officer.

I am, Sirs, yours faithfully,
LATE SURGEON, R.N.

[1] THE LANCET, Sept. 22nd and 29th, 1900.

BRISTOL ROYAL INFIRMARY.—Sir George White, the president of the Bristol Royal Infirmary, announced on Nov. 27th that the whole of the £50,000 which the committee asked the public to subscribe has been raised. The infirmary debt of many years' standing is now cleared off and £35,000 remain with which to carry out the long-desired improvements. Sir George White states that there will be a deficit of £2500 on this year's working of the institution and appeals for an increase in the number of annual subscribers.

THE FREE FEEDING OF SCHOOL CHILDREN AT MENTONE AND AT NICE.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Nice, November.

AT San Remo, on the Italian Riviera, as already explained, there has been a pioneer municipality in respect to the question of the feeding of children in the primary schools. Over the frontier in France this is also a pressing question, though it is in Paris rather than on the Riviera that the student must look for an instructive example.[1] So far back as 1877 the prefect of the Seine issued a circular to all the schools stating that the municipal council of Paris had resolved to study how a good, wholesome warm meal could be given every day to every child attending school. It was not, however, till the year 1884–85 that a considerable number of meals, more than a million portions, were actually served out to the children. Nevertheless, even this latter date places Paris 12 years in front of San Remo, and before anything really effective is accomplished on the other side of the Channel Paris is likely to be a quarter of a century ahead of London. The French towns of the Riviera, however, have lagged behind not only Paris but the great provincial centres, such as Lyons, Havre, and Roanne. Thus, several of the Riviera towns are much in the same position as English towns, with this difference—that they have behind them the force of a public opinion that is well informed on the whole question.

MENTONE.

Crossing over the frontier from Italy by the romantic bridge of St. Louis close to the troglodyte caves where the fossilised remains of some of the earliest human inhabitants of the world were found, the first French town is Mentone. Here some of the most modern problems of human existence are the subject of daily study and experimentation. If the troglodyte cave-dwellers had their difficulties, the providing of dwellings of all sorts to modern populations is a much more complicated matter. For instance, the town of Mentone has just spent £24,000 upon a new drainage scheme and it is quite certain that the troglodytes made no such sacrifice in dealing with their homes in the rocks. The application at Mentone of some of the most modern methods of civilisation affords an interesting contrast to the mode of existence of prehistoric man, of which abundant traces are to be found so close at hand. Among the modern problems to be dealt with by the municipality of Mentone is that of feeding the school children. On August 10th, 1905, the municipal council voted a sum of 9000 francs (£360) so as to build kitchens and to provide what was necessary to establish a *cantine scolaire* at a group of schools in course of construction in the Condamine district. But the works were not then sufficiently advanced for this proposal to be realised. Now on July 19th, 1906, on the proposal of the mayor, the sum voted was raised to £400. This was adopted and the scheme was submitted in due course to the prefect by whom it was endorsed in the name of the Government.

At the new schools of the Condamine district of Mentone there will be about 350 boys and 250 girls. For them £400 will be spent, so that proper kitchens and all that is necessary should be built at the same time as the schools themselves. Nothing as yet has been planned for the other schools. In the Forti district there is school accommodation for 400 boys and in the Conception district for 250 girls. There are also infant schools capable of holding 200 children who are from three to six years old. Altogether there are about 1450 children for whom a daily meal in all probability will have to be provided. No decision to this effect has been taken but this is the obvious trend of events. Though up to now the children have not been fed in the Mentone schools, it is very generally admitted that the time is not far off when all the children will have to be fed. On the other hand, the schools are such old and unsuitable structures that it is anticipated that they must be pulled down. Then it will be much easier to provide for meals in the building of new schools, thus doing for other parts of Mentone what is actually in course of execution in the Condamine district. Already the mayor has been authorised to buy land for the construction of a new school in the Caravan quarter. Therefore it is not proposed to make any alterations in the old schools.

[1] See THE LANCET, Sept. 17th, 1904, p. 860.

The population of Mentone—that is to say, what is denominated as the municipal population—numbers about 13,000, and there are as visitors during the winter from 18,000 to 20,000 foreigners. These foreigners are for the most part British and German subjects and it appears that the German visitors are as numerous as the British. The native population consists of agriculturists who cultivate land in the neighbourhood of Mentone, of fishermen and dockers, and of the artisans and workmen who do the work needed by the inhabitants and the visitors. This population, as already stated, send to the primary schools about 1250 pupils and 200 little children to the maternal or infant schools. The question then arises as to how many of these parents can afford to pay for the meal to be given to their children at school. At Mentone, as throughout France, an object lesson will be given next year in dealing with what may be described as the other end of the problem—namely, the feeding, not of poor children, but of the aged poor. In practice it is thought, at least by the authorities at Mentone, that organising of the one form of help will be of assistance in regard to the other. The new law rendering obligatory the giving of relief to the aged was passed in July, 1905, and its application will commence on Jan. 1st, 1907. This law enacts that all persons who are 65 years old and who are notoriously without resources have a right to apply for relief to the communal authorities if they have resided in the commune for five years, otherwise the municipality is not responsible. The applicant does not, however, lose his claim, only he must address himself to the departmental or county authority, if he has lived in the *département* for one year. Finally, if he has no such local standing then he must send his application to the central government and it is the State that pays. The money help given must not exceed 20 francs, or 16*s*., per month. If this does not suffice to meet the case the applicant may be boarded out in some rural district in a cottage with peasants or others who are willing to take in such boarders. Finally, the third and last solution is to send the applicant to an asylum or poorhouse.

As this law will come into operation shortly, the Mentone authorities have already made the necessary inquiries and investigations. They find that out of their municipal population of 13,000 there are 140 aged persons entitled to relief under the new law. Further, on the list of the *bureau de bienfaisance*, or poor relief bureau, there are 142 indigent persons inscribed who are not 65 years old but are so poor as to be considered to be worthy of public assistance. So here, in any case, are 282 persons who could not possibly be expected to pay for the feeding at school of any children for whom they may be responsible. It will be seen that the service of inquiry for the application of the law on old-age pensions and poor relief will have done a good deal of the work necessary to enable the authorities to decide with regard to the children who should be fed gratuitouly. At the same time the feeling is gaining ground everywhere that this attempt to make distinctions does a great amount of mischief. On the other hand, the children are so much better fed at school, and, as a wholesale transaction it costs per head so much less than if they were fed in retail at home. Therefore many argue that it would be a great saving to the parents to pay for their children's midday meal by taxation rather than to attempt to cook these meals each on a separate fire in a different house. In view of this growing opinion the Mentone authorities have determined to provide kitchens and all that is required for feeding all the pupils whenever they build a new school.

NICE.

Travelling homewards from Italy the next important town after Mentone is Nice. Indeed, it is the most important town on the French Riviera. It is the historical capital of the old Italian Duchy of Nizza and the capital of the modern French Department of the Alpes Maritimes. 500 years before the Christian era it was known to the Phocæans as Nicæa. The first *cantines scolaires* established at Nice by the municipality are now ten years old. Here, as in so many other places, the object was not to feed children because they were starving but only because some of them came such distances that they could not go home for their midday meal. There is a very large but scattered population on the outskirts employed in market gardening, in horticulture, and in the cultivation of flowers for exportation or for the making of perfumes. Their children go to the

nearest schools at Nice and notably to that of the St. Maurice district. They carried with them a little basket containing something for lunch; but of necessity such food was always cold. This was not considered good for the children. Therefore the municipality at its own expense built kitchens, provided cooking utensils and plates, and paid the salaries of the cooks. All these expenses being defrayed at the public cost it was easy to provide each child with a good, substantial, warm, vegetable soup for 1*d*.

From the financial point of view the system is very mixed. Firstly, as the entire plant and the wages of the cooks are provided by the municipality, the rich as well as the poor benefit alike from this public outlay. Those, however, who can afford it are called upon to pay the penny for the purchase of a soup ticket. The poor who cannot pay receive the ticket for nothing. But, according to the example given first in the Montmartre district of Paris, care is taken not to humiliate the poor children and the gratuitous tickets are given to them privately. Nevertheless, although a considerable number of children are fed gratuitously, there has been no deficit. The municipality has not been called upon for any financial subsidy. Nor was the cost of the material of the *cantines* heavy. The municipality built small out-houses with walls only one or two bricks thick, spent a few hundred francs in the purchase of saucepans and plates, and then heard nothing more about it. The reason of this is that the cook never spends more than she has in hand. If there are only a few pence then the soup is correspondingly weak or consists only of the cheaper vegetables and a smaller allowance of butter or oil. But the soups are generally very good, and though the ten centimes, or penny, paid is supposed to cover the cost of only a vegetable soup the children often get an excellent and nutritious meat soup. This is due to the fact that the charitable phase has not yet been abolished. Well-intentioned people go about asking for donations so that the children may be fed and in response some persons have given as much as £4. It is then that the cook buys meat and not only meat but chocolate, sweets, or cakes. This seems very inconsistent, for needless to say once these things have reached the school it is absolutely impossible to make any selections among the pupils. There can be no difference between the children of the rich and the children of the poor. All sitting round the same table must be fed alike. As the Director of Public Instruction remarked to me, "any such distinction would be fatal to education." Thus it happens that on some days when there are no other receipts than the pennies the children who can afford to give the pennies pay for those who cannot pay anything at all. On the other hand, when there is a donation from the outside then the children of well-to-do people equally with the children of the poor are in part fed out of charitable donations. It is such complications and inconsistencies as these that give rise to the demand for a municipal or a State tax to cover the entire cost of the feeding. The poorer the man, especially in France, where the *octroi* system prevails, the greater is the proportion of his income that goes to the paying of taxes. Therefore, if the children were fed at the public expense the poor, through taxation, would largely contribute towards the outlay, while a very numerous class of the community would find the extra tax cheaper than the cost of feeding their children at home. Then everyone would be entitled to the meals since everyone would have contributed to pay the cost. At Nice extreme poverty prevails, chiefly among the Italians who come over to do navvy's work and other forms of ill-paid unskilled labour which the natives will not undertake. These poor Italians are by nature inveterate beggars and they profit by the Church and other charities, and notably by the Assistance Publique or public relief organisation. To help them and the poorer sections of the French population there are two institutions. One is known as *Le sou de l'École Laïque* which gives clothes and books, and the other is the *Caisse Scolaire* which only gives books. In regard to school books, the demand is so great that the sums given by private charity do not suffice, and the municipality has to add an annual subvention of £240 to the funds of the *Caisse Scolaire*. So here again there is a mixture of the old ideas of voluntary charity with the modern conception of compulsory taxation for the maintenance of public services. In some of the richer quarters of the town these problems have not yet arisen. The parents are all in easy circumstances and their dwellings are so near to the schools that the children can without difficulty or appreciable loss of time return home for their midday meal.

Thus it will be seen that the feeding of the children in the primary schools at Nice is not organised on any definite and logical principle. Payments by the parents, payments by the municipality from the public purse, and private charitable donations are all three inextricably mixed. But this is not the case with regard to the maternal or infant schools. Here attendance is not obligatory and yet the municipality has assumed the entire responsibility. This is a practical necessity, though theoretically inconsistent. The parent may say that as he is forced by law to send his child to the primary school, the authorities, exercising this compulsion, must see that the child is none the worse because he obeys the law and therefore must give food if food is required. But the parents are not forced to send their children to the maternal schools. These are offered to the parents for the convenience of the parents, whereas the primary schools are enforced on the parents for the good of the State, which, to hold its own in competing with other nations, must have an educated population. However, whatever may be the force of these theoretical considerations, in practice it is of even more importance to see to the proper feeding of children from the age of three to six than it is when, being older, they are better able to look after themselves. Therefore, the municipality of Nice has undertaken to feed and to feed well and at its own cost all the children sent to the maternal schools. These schools are open from six in the morning to six in the evening. They receive children of both sexes from the age of three to six and the municipality is considering a scheme for keeping these schools open till nine in the evening.

The object, of course, of the maternal schools is to enable the parents to work with the knowledge that their young children are properly watched and cared for during their absence. The parents have not, as a rule, time to fetch these children for the midday meal and the children are too young to go home alone. Therefore the children must have their midday meal at the schools. But for the maternal schools many parents would not be able to go to work and this would greatly reduce the supply of cheap labour while increasing the amount of pauperism which has to be relieved. Thus it pays indirectly to provide for these little children.

At the maternal schools of Nice it is supposed that, however early the child arrives, he has had some sort of food before leaving home. Then he takes with him a basket containing a trifle, it may be a piece of bread and an apple or some bread and chocolate. This the child eats at about five in the afternoon. So it is only the midday meal which the municipality provides, but it is a complete meal, not merely a bowl of vegetable soup. On the contrary, the soup is often made with meat; and, in spite of the cost, pure milk is given to those children who seem more especially to need it. As a rule, a kilogramme of meat is allotted to six children every two days. Thus a complete hot meal is given every day and this without any question of charity, or of the parents being rich or poor. No questions are asked, no inquiry is made, and no payment is demanded; all are fed alike and all are well fed, with the exception of invalids and delicate children, and these are still better fed. This free feeding continues for 11 months in the year, for the maternal schools are open much longer than the ordinary schools. The total school population of Nice varies from 12,500 to 13,000 children. Of these, 2000 are not six years old and therefore attend the maternal schools where they are all fed. The feeding of these 2000 little children for 11 months costs the municipality of Nice £1200, and I am not aware that anyone has ventured to begrudge this outlay.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

A Public Medical Service.

IN association with the effort to obtain hospital reform, in which Birmingham is taking an active part, the medical practitioners of the district are making efforts to establish a public medical service somewhat on the lines already adopted in a few other towns. So far the principle has been generally agreed to and the details are being considered by a committee; therefore the fate of the scheme is at present uncertain, but there appears to be some probability that it may be adopted. If it is adopted and is workable it will

provide those patients who cannot afford the full usual fee of the private practitioner an opportunity of securing private attention at a reduced rate and it will save them from the necessity of attending hospital out-patient departments. Thus it will be useful to patients, to practitioners, and to the hospitals.

Anthrax.

When unreported cases of anthrax are discovered the offender is fined but the punishment is evidently not severe enough to deter certain people from attempting to make use of sick and dead animals without inquiring too closely into the cause of the sickness or death. This has been demonstrated quite recently by two successive cases which have occurred in the Midland district. In one of the cases a farm bailiff had a sick cow slaughtered, cut up, and partly distributed as food. Luckily the offal was given to pigs, which rapidly developed symptoms of anthrax; then the beef was recalled and destroyed. In the second case, as it appears from the evidence, a farmer had a calf which died suddenly. He gave no notice to the authorities but had the animal cut up. The workman who did the work scratched his arm and as the wound did not heal he went to the infirmary where it was discovered that he was suffering from anthrax. In the first case it does not appear that any human being suffered from the beef which was distributed, but the danger was very great, and it was stated at the trial that the practice of slaughtering sick animals was far too common. In the second case the evidence does not disclose why the calf was cut up or what was done with the remains, but the extra work of cutting up would not have been done without some object to be gained. Farmers, farm bailiffs, and dealers in animals must be well aware that when they allow parts of animals which were slaughtered because they were sick or which died suddenly to pass out of their own control they are exposing the public to a very great danger, and their position would be very serious indeed if a human being died as the result of their carelessness. The danger is so great and the disregard of it so evident that punishment by fine seems quite inadequate and should be replaced by something more severe.

The Students' Dinner.

The annual dinner of the present and past students of the Birmingham Medical School was held this year at the Grand Hotel and was one of the most successful on record. The principal guests were Professor T. Clifford Allbutt, Professor W. D. Halliburton, the Principal of the University, and the Dean of the medical school. All the guests made excellent speeches and it was significant of the change which is gradually appearing with regard to the amount and kind of food that we eat that several speakers drew attention to the fact that if the limits of change already reached by those persons who go to dinners provided with a few proteid biscuits, which they eat instead of the fare provided for them, becomes universal, then public dinners will become events of the past. If such a state is ever reached the adoption of the "simple diet" will be responsible for the loss of much pleasure, and it is questionable if it will give in return any commensurate profit or any increase of life, energy, or thought. From a biological point of view it may be urged that to attempt to lighten unduly the work of any organ of the body is eventually to court disaster for the whole organism, for the removal of work and responsibility never tends in nature to the production of anything but ineptitude.

Health of the City.

We are still suffering from an excessive prevalence of diphtheria and scarlet fever, but fortunately neither disease is of a virulent type and our death-rate remains at the satisfactory low level to which we have become accustomed. Influenzal attacks are also numerous but they, too, are not very severe. The healthy condition of the human inhabitants is in great contrast with the health of the horses which is so bad that the market and fairs committee has requested the public works department to discontinue the use of the public drinking-troughs till further notice.

Dec. 11th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Sanitary Inspectors' Association.

THE nineteenth annual dinner in connexion with the north-western district centre of the Sanitary Inspectors' Association was held on the evening of Dec. 8th at the Compton Hotel. Mr. Francis Vacher, the medical officer of health of the Cheshire county council, presided. Dr. E. W. Hope, the medical officer of health of Liverpool, in proposing the toast of "The Sanitary Inspectors' Association," said that there never was a time when the interest in matters of sanitation was so great as at the present moment and it was the object of the association to show how those great ends should be attained. Speaking of the difficulties which Liverpool as a port had to contend with, he mentioned that last year no less than 300,000 emigrants passed through the city. On the whole, they were an extremely healthy class of people, yet they must incidentally bring some sickness from time to time, and that rather added to the difficulties in preserving the health of the city. Then, again, Liverpool's trade with all parts of the world resulted in various colonies. Some of those colonies attracted a little more attention than others. One of them to which special attention had been directed—no doubt Dr. Hope was alluding to the Chinese—was certainly as well conducted as any in their midst. It was an extremely small one and in regard to the criticism which it had drawn upon it he would like to quote the words of a well-known individual who, in speaking of the colonists in his country, said, "We must treat with justice and goodwill all immigrants who come here under the law." He wished the association continued prosperity and hoped it would progress in the great work which it had to perform.

Another Death from Anthrax in Liverpool.

The city coroner held an inquest on Dec. 11th on the body of George Fleming, aged 62 years, a carter employed at the docks. Within the last two or three weeks the deceased had handled various cargoes of wool, sheepskins, goatskins, and hay, but he had not been employed in the handling of hides for some time. He was admitted to the David Lewis Northern Hospital on Dec. 6th complaining of severe pains; an anthrax pustule was discovered on the side of his neck. In spite of a slight operation he succumbed to the disease on the 8th. A verdict of "Death from anthrax" was returned by the jury. The coroner remarked that although it seemed almost hopeless that an effective method of combating the disease would be devised it was reassuring, in some degree at any rate, that the subject was engaging the assiduous attention of the Home Office. In connexion with this subject it may be mentioned that the Home Secretary has issued a circular stating that his attention has been called to the danger of anthrax which appears to attend the handling of East India wool and that he has under consideration the question of bringing it under the regulations—so far as they are applicable—which have already been made for other classes of dangerous wool. He says that he will gladly consider any observations which manufacturers may wish to bring before his notice.

Dec. 11th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

International Congress on School Hygiene.

IN order to arouse local interest in the International Congress on School Hygiene, which is to be held in London during August of next year, a committee of Welsh educationists and others was formed early in the present year. The interest taken in the question is not so great as might have been anticipated, but perhaps as the date of the congress draws nearer more enthusiasm will be displayed in its objects. At the end of November a meeting of representatives from the whole of Wales was held at Shrewsbury. Sir Isambard Owen was elected president of the committee and among the vice-presidents are Dr. J. Tatham Thompson, Dr. William Williams, Dr. Robert Jones, and Dr. Edward Walford, the last-named being also chosen as one of the secretaries of the committee. The education authorities in the Principality are to be asked to appoint delegates to the congress and to contribute towards the expenses.

Rhymney Cottage Hospital.

At a meeting of the workmen employed in the Rhymney district held on Dec. 1st it was decided to contribute from their wages a halfpenny in the £ towards the maintenance of the cottage hospital which was established two years ago. There is accommodation in the hospital for ten patients.

When the institution was completed there were about £800 in hand towards a maintenance fund. The cost of the building was £2250 and the workmen's doctors' committee contributed from their funds nearly £3000, so that almost the whole of the initial cost of the hospital as well as its upkeep since its establishment has been borne by the workmen themselves.

Dinner to Mr. J. Lynn Thomas and Mr. H. E. Skyrme.

The members of the South Wales and Monmouthshire Branch of the British Medical Association and of the Cardiff Medical Society entertained at dinner on Dec. 8th Mr. J. Lynn Thomas, C.B., and Mr. H. E. Skyrme in order to show the sympathy of the local medical practitioners in connexion with the recent legal proceedings in which these gentlemen have been involved. In spite of the fact that only a few days' notice of the gathering was given there were nearly 150 medical men present.

West Wales Sanatorium.

An urgent appeal has been issued by the committee of the West Wales Sanatorium to the ministers of religion in the counties of Carmarthen, Pembroke, and Cardigan, asking them to bring before their respective congregations the claims of that institution. The sanatorium is now nearly completed and it is hoped that it will be ready for the reception of patients next spring. The cost of the undertaking is about £3000 and of this amount £5000 have been already promised. The primary object of the institution is to provide accommodation, at a nominal charge, for patients coming from the three counties already named, but limited provision will also be made for those who can pay an adequate sum. The committee in its appeal draws attention to the fact that 669 deaths occurred from tuberculous diseases in the three counties in 1904, the majority of the patients being young people whose lives might have been saved by sanatorium treatment.

Meeting of the Royal Sanitary Institute at Malvern.

The meeting of the Royal Sanitary Institute at Malvern on Dec. 1st proved once more the wisdom of the council of the institute in organising sessional meetings in different parts of the country. Malvern is a particularly appropriate place to hold such a gathering, for it is not only a very pleasant locality to visit, but the urban district council has very wisely provided the town with what may be called a sanitary equipment upon modern lines. The members of the institute, numbering over 60, who attended the meeting, visited the four-cell refuse destructor, which is installed at the electric lighting works, the sewage disposal works, where the sewage is spread over bacteria beds by a Candy-Caink distributor, and the isolation hospital which has been built within the last five years. A visit to the waterworks was found impossible only through lack of time. In the early part of the day Colonel J. Lane Notter, R.A.M.C., presided over a meeting at which Mr. J. Willis Bund, chairman of the Worcestershire county council, opened a discussion upon the important question of the size of sanitary areas. He said that circumstances had very much altered since the present areas of sanitary administration had been formed. His experience in Worcestershire had led him to the conclusion that better work could be done if a change were made in existing areas. The rateable value of many districts was so small that if the sanitary laws were to be effectively carried out this could only be done by raising the rates to an almost prohibitive sum. In his view the county should be the area and the county council working through local committees should administer the Public Health Acts. The county council, he maintained, would be able to deal with the large questions of water-supply, sewerage, and river pollution upon a broad basis and the difficulties of works inside and outside a small district would very seldom arise. Dr. John Robertson, medical officer of health of Birmingham, said that while the larger towns were doing very good work there was a hindrance to similar good work being done in smaller areas not only owing to lack of money but because there was a lack of men with sufficient knowledge to carry out the existing laws and to adapt sanitary progress to the times. As a matter of fact, they were getting a much cleaner milk-supply in Birmingham from the cowsheds inside the town than from those situated outside. The time was ripe, he thought, for something to be done; the people living in the rural districts were living in more or less unwholesome conditions and these endangered the lives of those in the towns. Dr. H. E. Dizey agreed that there should be much more systematic supervision of dairies. He advocated centralisation of sanitary administration and the employment of assistant county medical officers of health.

Medical Men and Local Administration.

Mr. Colston Wintle, L.R.C.P. Lond., M.R.C.S. Eng., the chairman of the Bristol health committee, has been returned unopposed for the Horfield ward of the Bristol town council.—Mr. George Shepley Page, L.R.C.P. & S. Edin., public vaccinator for Bristol, successfully contested the central east ward of the Bristol town council.—Mr. Perceval C. H. Ryan, M.D., B.Ch. Dub., has been elected for the Lyncombe and Widcombe ward of the Bath town council.—Mr. Ernest Arthur Travers Stubbs, L.R.C.P. & S. Irel., has been returned for the Friary ward of the Plymouth town council.—Mr. William Robert Wilson, L.R.C.P. & S. Irel., L.S.A., has been elected to the Penzance town council.

Dec. 11th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Discussion on Tuberculosis at the Edinburgh Medico-Chirurgical Society.

Dr. Byrom Bramwell read a paper at this society on Wednesday, Dec. 5th, on the Tuberculosis Problem in Scotland. For the same meeting he gave notice of a motion dealing with the circular of the Scottish Local Government Board of March 10th last. That circular intimated that the Board had concluded, after consultation with its legal advisers, that pulmonary tuberculosis was an infectious disease in the meaning of the Public Health (Scotland) Act, 1897. The Board, however, indicated that it would not sanction the adoption of notification unless steps were also taken for the treatment of the disease. Both Dr. Bramwell and Dr. R. W. Philip warmly commended the action of the Board in declaring pulmonary tuberculosis to be as definitely an infectious disease as other diseases which were dealt with under the Act referred to. On this point there did not appear to be any difference of opinion at the meeting, but soon there emerged other points on which there was marked difference of opinion. One member spoke against taking the result of the examination of the sputum as the absolute test of the presence or absence of tuberculosis. Others condemned the Board's circular because the Board would not accept notification alone. Some were opposed to compulsory notification. With this diversity of opinion in regard to important aspects of the question under discussion it was apparent that Dr. Bramwell's motion could not with any advantage be voted upon. It was suggested that the discussion should be adjourned, but under the present *régime* at the society obstacles are put in the way of any such proposal. This is all the more to be regretted, for such an adjournment would have given time for the forming of propositions which could have been separately voted upon in such a way as to indicate clearly the mind of the profession, as it is represented in this society, on points which so deeply concern the public as well as the profession in Scotland. A valuable opportunity has been lost of obtaining such an expression of opinion.

Autonomy for the Scottish Universities.

The claim for autonomy which has been brought forward so strongly by the General Council of the University of Edinburgh continues to attract considerable attention and the interest in it is widening. At a recent meeting of the General Council of the University of St. Andrews Dr. Dow proposed the following motion:—

> That the Council is of opinion that each of the Scottish universities should have greater freedom of action, and the Council suggests to the University Court that steps should be taken by the University Court to arrange a conference with the courts of the other three universities with this end in view.

This motion was accepted with an addition to it, proposed by Professor Scott Lang, to the effect that the committee should be composed of members representing the Council, the Court, and the Senate.

Anderson's College Medico-Chirurgical Society Dinner.

The fifty-ninth annual dinner of this society was held last week in St. Enoch's Hotel, Glasgow. A feature of the after dinner speeches by the governors of the College and others

was the light which they threw upon the present position of extramural teaching in Glasgow. It was pointed out that the diminution in the number of students was largely due to two causes, the Carnegie Fund, on the one hand, and the recent inauguration of several new English universities, on the other. As regards the funds available for extramural schools the secretary of the College stated that they would not be able to share in the £220,000 which was the equivalent grant given to Scotland in respect of the English Education Act of 1902, or in the £100,000 of arrears which was to be distributed for one year only as both had already been ear-marked. Dr. D. C. McVail emphasised the fact that the University of Glasgow had within the last quarter of a century come into greatly augmented funds and had been in a position greatly to extend its scientific departments; that was telling on the extramural schools. The University wanted £15,000 a year from the equivalent grant and it meant to get it. If the extramural schools wanted to get a share also of the equivalent grant they must fight along with the University, and the greatest enemy they would have to meet was Doree House.

Glasgow University Club Dinner.

The usual half-yearly dinner of the Glasgow University Club of London was held last week at the Trocadéro Restaurant. The Chancellor of the Exchequer, who is Lord Rector of the University, presided over a large company.

The Proposed Sanatorium for Aberdeen.

A lecture was delivered on Dec. 5th, under the auspices of the Aberdeen and District Friendly Societies Council, by Dr. Arthur H. Lister on "Consumption of the Lungs." He drew special attention to the fact that the cases which were likely to recover under sanatorium treatment were those in the earliest stages of the disease. He next spoke of the means which existed for the treatment of a limited number of cases of pulmonary tuberculosis at the infirmary, and Mrs. Smith's valuable home at Newhills, providing at the present time accommodation for some 70 cases per annum; at Morningfield Hospital where there was provision for some eight cases of pulmonary tuberculosis in an advanced stage; and at the new Poor-house, where provision would be made for a limited number of both male and female pauper consumptives. Dr. Lister also dealt with the question of food and cooking and infant-feeding, to which attention had been drawn by the medical officer of health of the city. He then discussed the subject of providing funds for the support of those dependent on working men who had become inmates of a sanatorium. In answer to a question Dr. Lister said that the proper treatment of consumptives could not, he thought, be undertaken at less than £40 a head. For the erection and equipment of a sanatorium a total capital expenditure of £7250 would be required and the annual cost of 25 patients, he believed, would be £2150.

Dec. 11th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

University Education in Ireland.

A NOVEL element has recently entered into this problem. It has long been known that Dr. B. C. A. Windle, the President of Queen's College, Cork, and Dr. Sullivan, his predecessor, were strongly in favour of the establishment in Cork of a University for the province of Munster. On Nov. 17th Mr. William O'Brien, M.P., announced that he and his wife had determined to leave all their money at their death to form an endowment for this purpose and that a sum of £50,000 was now available conditional on the levying by the borough, district, and county councils of a small rate which will ultimately be returned to them. The immediate effect of Mr. O'Brien's action would be to double for a period of five years the existing endowment of the Cork Queen's College and to enable the promoters of the new movement, as he said, to start with a university without demanding an additional pound from the State. It is well known that owing to the persistent hostility of the Roman Catholic bishops the college in Cork has hitherto proved little more than a very high-class and most deservedly successful medical school. From further remarks in his speech Mr. O Brien made it clear that he contemplated a system of mixed education with duplicate chairs in such subjects as history and philosophy in the college or university which he wishes to endow. It would seem, in fact, the Bonn system which the bishops denounced when it was recently proposed by members of the Roman Catholic laity as a solution of the Trinity College difficulty. It is interesting to note that the munificent proposal of Mr. O'Brien was not made until the Royal Commission dealing with the University of Dublin and Trinity College had concluded its sittings. Its report has not yet appeared.

Irish Medical Association.

The committee of council of the Irish Medical Association held a meeting at the Royal College of Surgeons on Dec. 4th and considered the remuneration offered to the medical profession under the recent post-office medical scheme and the age limit of 60 years about to be applied to the existing medical officers. It was stated that the condition was entirely a new one and unjust to medical officers at present holding those appointments. It was decided to address the Postmaster-General on the subject.

Queen's College, Belfast.

On Dec. 4th at a meeting held in the students' union of Queen's College, Belfast, arrangements were made for holding a bazaar to raise sufficient money to purchase a field to be used for athletic sports, &c. It is estimated that a sum of £5000 will be needed for this purpose, and Sir Donald Currie, Bart. (an old Belfast man), has offered to give one-fourth of the money on condition that within 12 months the students raise the other three-fourths. The bazaar is to be held in May, 1907.

The Belfast Board of Guardians and Tuberculosis.

In his half-yearly report Mr. Robert Agnew, Local Government Board inspector, congratulates the guardians of the Belfast union on the humanity and intelligence which they have shown in availing themselves of the means which science has placed at their command by their endeavours to combat pulmonary tuberculosis in its early stages amongst patients under their care, and also by removing the danger of contact with the other patients by providing separate accommodation at the Abbey Sanatorium for those suffering from tuberculosis.

Dec. 11th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Writing for the Blind.

EVERYONE knows that Braille invented a system of relief points indicating letters, words, and phrases which the blind can read by touch. When blind people wished to write they wrote in Braille type with the aid of a stylus and perforated plate laid under a sheet of paper. The difficulty of this system, however, is that blind people always have to make use of a third person when they wish to correspond with anyone who cannot read Braille type. M. Ernest Vaughan, director of the Hospice des Quinze Vingts, has just invented an ingenious apparatus which obviates this difficulty. The portable printing apparatus for blind people is a small box which contains on one side a case of ordinary printing stamps and on the other an empty case. The stamps have at one end a Braille letter and at the other the ordinary Roman letter which corresponds. These characters are placed with the Roman letter downwards upon an ink pad in the case towards the left. The blind person recognises his stamps by the Braille types on their ends and so composes his words. Then going from left to right he places the letters in the case on the right hand under which is a sheet of paper which receives the impression. When all the characters are in place the blind person has nothing to do but to exercise pressure upon them so as to print off the Roman lettering upon a sheet of paper. When a person who does not know the Braille alphabet wishes to write to a blind person he takes the same stamps but leaves out the ink pad. He arranges his characters with the Roman stamp upwards, composes his words and then places them one by one in the empty case, taking care to go from right to left. He then presses the stamps into the piece of paper previously placed underneath them, and the Braille letters are in this way impressed in intaglio. When the paper is sent to the blind

person he turns it over and can thus read the characters in relief.

Births and Deaths.

The official report upon population in France for the year 1905 shows that the excess of births over deaths has fallen from 0·15 in 1904 to 0·10 in 1905. This diminution depends, on the one hand, on the fact that in 1905 there were 10,938 births less registered than in 1904, while, on the other hand, the total number of deaths registered in 1905 was 8968 more than in 1904. Nothing seems to give any hope that the situation in respect of diminution of population will improve.

Scarlatinal Rheumatism and Aspirin.

At a recent meeting of the Pædiatric Society M. Hallé and M. Weil-Hallé communicated a paper dealing with some researches on the above subject. The investigations were carried out on 436 cases of scarlet fever under the care of M. Grancher. Among these were 14 cases of rheumatism. The three first of these were treated with sodium salicylate which had but little effect. The remaining 11 cases were treated with aspirin in doses of one gramme. Under this treatment the joint troubles rapidly improved. Similar results were obtained by M. Richardière in scarlatinal rheumatism and by M. Guignon in other painful manifestations.

Increase in the Number of Medical Students.

The number of candidates for the first examination in medicine, known as P.C.N.—i.e., physics, chemistry, and natural science—has undergone a marked increase. There are 750 candidates, as against 562 in 1905–06, and as against 433 in 1904–05.

Myxœdema and Reversion to Infantilism.

On Dec. 7th M. Gandy showed at the Hospitals Medical Society two men, aged respectively 46 and 35 years, who had suffered for some time from myxœdema. They both showed marked signs of infantilism, but the curious thing about the cases was that the infantilism was not that of arrested development, but a reversion. In other words, the myxœdema had been the cause of the two patients reverting to a condition of ante-puberty. The genital organs were now atrophied which had not been previously the case. The same conditions existed with regard to secondary sexual characters. The height of one man was 1·59 metres and of the other 1·63 metres.

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The Influence of Gonorrhœa on Fecundity.

Professor Erb of Heidelberg has published in the *Münchener Medicinische Wochenschrift* a paper on the prevalence of gonorrhœa and its influence on the process of reproduction. His investigations on this subject were commenced some years ago and he has been induced to continue them by a discussion in the recently founded society for the prevention of venereal diseases. This society in one of its popular publications greatly over-stated the prevalence of gonorrhœa, alleging that of each 1000 men between 20 and 30 years of age in Berlin nearly 200 contract gonorrhœa every year. The statistics compiled by Professor Erb from the cases of 2200 patients attended in his private practice, and not including hospital patients under his care, showed that 48·5 per cent. had suffered from gonorrhœa. Of 400 patients, regarding whom more detailed particulars could be given, 84·7 per cent. had contracted the disease at ages between 16 and 25 years, 11·4 per cent. between 26 and 30 years, 3·2 per cent. between 31 and 40 years, and 0·5 per cent. after the fortieth year of age. Of the wives of the above 400 men 375 were healthy and only 6·25 per cent. suffered from such diseases of the reproductive organs as might with more or less probability be attributed to gonorrhœa. Among the 375 healthy wives there were five regarding whom the information was imperfect; 89 had two children, 69 had three children, and 94 had from four to ten children; 74 had one child only—partly because of the marriage being comparatively recent; and 44 (i.e., 12 per cent.) had no children. Professor Erb has further investigated whether sterility was more frequent in cases where gonorrhœa had been contracted by the husband a comparatively short time before the marriage. He found that this was not the case, for in five marriages entered into one year after an attack of gonorrhœa four wives remained healthy, and in 24 marriages entered into after two years 19 wives had remained healthy and had borne children. Of 25 women who had been infected by the husband only 11 had no children. Professor Erb therefore infers that gonorrhœa has not such a deleterious influence on the health of the wives or on the increase of the population as has hitherto been believed.

Transplantation of a Toe to Replace a Lost Thumb.

At a recent meeting of the Berlin Medical Society Professor Krause showed a case in which he had put the great toe into the place of the thumb. The patient was a man who in childhood had his right thumb cut off by a machine, leaving only a small piece of the first phalanx. At his request Professor Krause performed a plastic operation; he first prepared the cicatrix of the thumb, then on the dorsal side of the great toe he cut through the skin, the tendons, and the interphalangeal joint, but left the plantar side in connexion with the foot. In this way a cavity was formed into which the stump of the thumb was implanted and joined by suture of the tendons, the fascia and the skin with the second phalanx of the toe. Then the toe and the thumb were put together in a large plaster bandage for 17 days. Notwithstanding his uncomfortable position the patient felt tolerably well and only complained of pains in the knee which were combated by morphine. After 17 days the skin and the tendons on the plantar side were cut through and sutured to the thumb. Primary union was obtained and the implanted toe, becoming atrophic, was nearly of the size of the thumb. The joint has good passive mobility and it is hoped that active mobility will be restored by massage.

The Legal Aspect of Doubtful Sex.

At a recent meeting of the Society for Social Medicine Dr. Magnus Hirschfeld read a paper on instances of doubtful sex. He said that there were certain cases in which the sex of a newly born child could not be ascertained, so that the child might at first be regarded as a hermaphrodite, though afterwards the characteristics of one or other sex predominated. There were in the ancient common law of Prussia provisions concerning this event: it was the right of the parents to assign the sex in the first instance, and the hermaphrodite, after his or her eighteenth year, might decide to which sex he or she preferred to belong. In the new codification of the German common law adopted in 1900 the above paragraphs were dropped; in the Parliamentary debates the opinion was expressed that hermaphrodites did not exist and that owing to the advance of science it could now be ascertained in doubtful cases to which sex the child really belongs. Nevertheless, as early as 1902 Professor Garré of Königsberg showed an individual in whom ovaries and testicles were simultaneously present, and subsequently some more cases became known in which the sex remained doubtful even after puberty. Such cases were, however, very rare, as at the time of puberty the signs of one sex or the other usually became distinct. Dr. Hirschfeld then gave the history of three cases and showed the individuals. One of them was a person 21½ years of age, who was registered as a girl immediately after her birth. She, however, preferred boys' games, disliked dolls, and showed an energetic and firm character. At the age of 15 years the voice began to change and the beard to develop. She accordingly tried to be acknowledged legally as a man, but this change, which under the former law would have been easy, was very difficult under the new law, as it did not contain any provision for such an event. The case of this young person is now under the consideration of the Minister of the Interior. The second individual shown by Dr. Hirschfeld was a person 45 years of age, who had been registered as a female but in whom masculine characteristics developed after puberty; her voice changed and a beard began to grow which she destroyed by burning the hair. She declared that although she would like to be registered as a man she must abstain from doing so; she had been brought up as a woman and had learned only feminine occupations; if she were declared to be a man she would lose her means of livelihood. She was employed in a warehouse where neither the proprietors nor the employees knew anything of her peculiar conformation but if the facts were disclosed she would be dismissed. The most interesting case was that of a man 43 years of age who told his history to the society. After his birth there was a controversy between

the medical man and the midwife as to the child's sex but the parents upheld the latter's opinion that the child was a girl. She accordingly was brought up as such and afterwards worked in a printing office. As in the other two cases the sex became absolutely distinct at puberty, the only abnormality being a small fissure in the scrotal raphe. At the age of 20 years, when one of the male printers became ill, she undertook his work and continued it though still regarded as a woman. Her instincts, however, were absolutely masculine and her sex was ascertained by a medical man whom she consulted for gonorrhœa. At the age of 25 years she was officially registered as a man, a formality which under the former law was accomplished within a week. The newly registered man accordingly married and has a daughter seven years of age. Dr. Hirschfeld, who in his address kept expressly in view the social side of the question and not the anatomical one, said that the present state of the law was very unsatisfactory for the class of persons above described. It ought to be provided that cases of doubtful sex might be registered as doubtful. At present when the parents have to come to a definite decision as to whether their child was male or female it was from a practical point of view preferable to register it as a male, both because in the majority of cases the male characteristics developed afterwards and also because there were more opportunities for earning a livelihood open to a boy than to a girl.

Dec. 11th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Medical School of Pistoia.

NOT only Tuscany but outlying Italy was brilliantly represented on Nov. 25th, when honour, long deferred, was accorded to the medical worthies of Pistoia—one of those provincial schools which, starting early in the seventeenth century, did excellent work in their time, till for reasons, mainly economic, they were merged in the larger seats of learning in the same province. The heroes of the day were (taken in order of time) Antonio Matani, Atto Tigri, Filippo Civinini, and Filippo Pacini, their contributions to the science and art of medicine being set forth on memorial tablets appropriately placed at the scene of their life work, while the commemorative act itself was the theme of a special inscription inserted under the *loggia* of the Ospedale del Ceppo. This latter is from the pen of the distinguished professor of the history of philosophy in the University of Naples, Alessandro Chiappelli, and runs as follows: "That the Medical School of Pistoia should not, in the lapse of centuries, be lost to memory, this memorial was placed on the 25th Nov., 1906, in testimony of the fact that from this ancient hospital sacred to suffering, to piety, and to science, the torch of learning was for many years kept burning and that it gave to the Tuscan Universities illustrious masters in the Hippocratic discipline, while in more recent times it made, through its gifted nature-students, remarkable contributions to biology. In the name of the Pistoiese Committee, with the assent of the administration of the hospital, and amid the applause of the citizens." A few details as to the men of science commemorated may be acceptable before turning this most recent page in the history of medicine. Antonio Matani was at once a surgeon, a philosopher, and a mathematician, and was born at Pistoia in 1730. He studied at the Seminario Pistoiese, distinguishing himself in mathematics and becoming lecturer on geometry in that school. Devoting his gifts to the medical sciences he enrolled as a student in the same at Pisa and thereafter at Florence. From the post of clinical lecturer at Pisa he passed to that of anatomy in the Pistoiese School, where, after a brilliant career, he died in 1779. Among his numerous works the student of medical history still recalls his "De Aneurysmaticis Praecordiorum Morbis" and his "De Nosocomiorum Regimine." Atto Tigri, an anatomist of the first order, was born at Pistoia in 1813 and studied at the Liceo Forteguerri. An enthusiastic and eminently capable nature-student he came well equipped to the medico-chirurgical clinique of the Pistoiese Hospital, whence he passed to Florence and subsequently to Pisa, where he had a distinguished career in all the medical classes, graduating "summa cum laude." Swept into the revolutionary vortex of 1848 he fought his country's battles in Lombardy and, as surgeon, did heroic service, not only in the ambulance, but under fire, particularly on the "glorious 29th of May." From the "battaglione Universitario" at the conclusion of the war he returned to Pisa and there filled the post of "supplementary teacher" of anatomy till he was called to the chair in connexion with that subject in the University of Siena in 1875, where he closed a useful and strenuous life, after enriching scientific literature with many contributions. Third on the list is Filippo Civinini, born in Pistoia in 1805, and, after preliminary instruction at the local school, enrolled as a student of medicine at Pisa, where he held an honourable place in the much-frequented anatomical and surgical classrooms of Professor Castellacci and Professor Vacca. Graduating in 1825, he entered on post-graduate study in Florence where he finally settled in consulting practice and acquired a large *clientèle*. He published his "Linee Anatomiche" in 1829–30 and later was appointed director of the University of Pisa. In 1834 he resumed anatomical work as professor of the subject in the same seat of learning and afterwards filled the chairs of pathology and the institutes of surgery. He died in 1844, but not before he had left quite a library of monographs embodying acute and independent research on the nervous system and on the lymphatics. The fourth and last name is the most distinguished of all—that of Filippo Pacini. A Pistoiese by birth, he in 1830, when just 18 years of age, devoted himself heart and soul to anatomical study and in the hospital of Pistoia made many elaborate investigations in the dead-house. When engaged in a series of minute dissections of the human hand he made the discovery of what are now universally known as the "corpuscula Pacini"—a discovery embodied in a publication which at once procured him the chair of anatomy in Pisa. In 1848 he was appointed professor of that subject at Florence, his tenure of the chair being made memorable not only by his exposition and research but by his incursions into other fields—that of cholera in particular during the disastrous epidemic of 1854–55. His monograph on "Apparent Death" from the disease, in which he gave striking details of the rescue of supposed victims not only in the coffin, but on their way to the cemetery, is among the "classics" of cholera literature. He died in Florence on July 9th, 1883, and THE LANCET soon afterwards published an account of his life work and an estimate of its results.

Dec. 10th.

Obituary.

GIUSEPPE LAPPONI.

ON Friday, Dec. 7th, at 6.20 A.M. died the Pope's body-physician, Dr. Giuseppe Lapponi, who had acted in the same capacity to the Pontiff's immediate predecessor Leo XIII. Born at Tolentino in the Marches on April 16th, 1851, he was but 55 years old when he succumbed to an illness of some three years' standing—an illness obscure in its earlier stages but latterly declaring itself as carcinomatous in character, affecting the liver and finally the spleen. With the energy and devotion to duty which belonged to him he remained at his post long after it was wise or prudent in him to do so—till, in fact, his distinguished patient had plainly to tell him that, of the two, the doctor was most in need of medical aid. He continued, however, his periodical visits within a few days of each other at the Vatican, so far yielding to the Pope's kindly insistence as to take to bed immediately afterwards. But the end was not distant, and on the morning of Dec. 3rd on returning from a short drive he was seized with acute rigors, coincident with a raised temperature. Dr Marchiafava and Dr. Gallenga, who attended him, found him in the initial stage of bilateral pleuro pneumonia and from the first, though unremitting in their care, took the most desponding view of his case. An apparent rally on the Thursday (the 6th) was not maintained and he sank rapidly, while preserving the clearness of his faculties, till, as stated, he passed away in the early morning of the 7th, his wife, his son, his daughter, and Dr. Gallenga being at his bedside.

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NOT only Tuscany but outlying Italy was brilliantly represented on Nov. 25th, when honour, long deferred, was accorded to the medical worthies of Pistoia—one of those provincial schools which, starting early in the seventeenth century, did excellent work in their time, till for reasons, mainly economic, they were merged in the larger seats of learning in the same province. The heroes of the day were (taken in order of time) Antonio Matani, Atto Tigri, Filippo Civinini, and Filippo Pacini, their contributions to the science and art of medicine being set forth on memorial tablets appropriately placed at the scene of their life work, while the commemorative act itself was the theme of a special inscription inserted under the *loggia* of the Ospedale del Ceppo. This latter is from the pen of the distinguished professor of the history of philosophy in the University of Naples, Alessandro Chiappelli, and runs as follows: "That the Medical School of Pistoia should not, in the lapse of centuries, be lost to memory, this memorial was placed on the 25th Nov., 1906, in testimony of the fact that from this ancient hospital sacred to suffering, to piety, and to science, the torch of learning was for many years kept burning and that it gave to the Tuscan Universities illustrious masters in the Hippocratic discipline, while in more recent times it made, through its gifted nature-students, remarkable contributions to biology. In the name of the Pistoiese Committee, with the assent of the administration of the hospital, and amid the applause of the citizens." A few details as to the men of science commemorated may be acceptable before turning this most recent page in the history of medicine. Antonio Matani was at once a surgeon, a philosopher, and a mathematician, and was born at Pistoia in 1730. He studied at the Seminario Pistoiese, distinguishing himself in mathematics and becoming lecturer on geometry in that school. Devoting his gifts to the medical sciences he enrolled as a student in the same at Pisa and thereafter at Florence. From the post of clinical lecturer at Pisa he passed to that of anatomy in the Pistoiese School, where, after a brilliant career, he died in 1779. Among his numerous works the student of medical history still recalls his "De Aneurysmaticis Praecordiorum Morbis" and his "De Nosocomiorum Regimine." Atto Tigri, an anatomist of the first order, was born at Pistoia in 1813 and studied at the Liceo Forteguerri. An enthusiastic and eminently capable nature-student he came well equipped to the medico-chirurgical clinique of the Pistoiese Hospital, whence he passed to Florence and subsequently to Pisa, where he had a distinguished career in all the medical classes, graduating "summa cum laude." Swept into the revolutionary vortex of 1848 he fought his country's battles in Lombardy and, as surgeon, did heroic service, not only in the ambulance, but under fire, particularly on the "glorious 29th of May." From the "battaglione Universitario" at the conclusion of the war he returned to Pisa and there filled the post of "supplementary teacher" of anatomy till he was called to the chair in connexion with that subject in the University of Siena in 1875, where he closed a useful and strenuous life, after enriching scientific literature with many contributions. Third on the list is Filippo Civinini, born in Pistoia in 1805, and, after preliminary instruction at the local school, enrolled as a student of medicine at Pisa, where he held an honourable place in the much-frequented anatomical and surgical classrooms of Professor Castellacci and Professor Vacca. Graduating in 1825, he entered on post-graduate study in Florence where he finally settled in consulting practice and acquired a large *clientèle*. He published his "Linee Anatomiche" in 1829–30 and later was appointed director of the University of Pisa. In 1834 he resumed anatomical work as professor of the subject in the same seat of learning and afterwards filled the chairs of pathology and the institutes of surgery. He died in 1844, but not before he had left quite a library of monographs embodying acute and independent research on the nervous system and on the lymphatics. The fourth and last name is the most distinguished of all—that of Filippo Pacini. A Pistoiese by birth, he in 1830, when just 18 years of age, devoted himself heart and soul to anatomical study and in the hospital of Pistoia made many elaborate investigations in the dead-house. When engaged in a series of minute dissections of the human hand he made the discovery of what are now universally known as the "corpuscula Pacini"—a discovery embodied in a publication which at once procured him the chair of anatomy in Pisa. In 1848 he was appointed professor of that subject at Florence, his tenure of the chair being made memorable not only by his exposition and research but by his incursions into other fields—that of cholera in particular during the disastrous epidemic of 1854–55. His monograph on "Apparent Death" from the disease, in which he gave striking details of the rescue of supposed victims not only in the coffin, but on their way to the cemetery, is among the "classics" of cholera literature. He died in Florence on July 9th, 1883, and THE LANCET soon afterwards published an account of his life work and an estimate of its results.

Dec. 10th.

Obituary.

GIUSEPPE LAPPONI.

ON Friday, Dec. 7th, at 6.20 A.M. died the Pope's body-physician, Dr. Giuseppe Lapponi, who had acted in the same capacity to the Pontiff's immediate predecessor Leo XIII. Born at Tolentino in the Marches on April 16th, 1851, he was but 55 years old when he succumbed to an illness of some three years' standing—an illness obscure in its earlier stages but latterly declaring itself as carcinomatous in character, affecting the liver and finally the spleen. With the energy and devotion to duty which belonged to him he remained at his post long after it was wise or prudent in him to do so—till, in fact, his distinguished patient had plainly to tell him that, of the two, the doctor was most in need of medical aid. He continued, however, his periodical visits within a few days of each other at the Vatican, so far yielding to the Pope's kindly insistence as to take to bed immediately afterwards. But the end was not distant, and on the morning of Dec. 3rd on returning from a short drive he was seized with acute rigors, coincident with a raised temperature. Dr Marchiafava and Dr. Gallenga, who attended him, found him in the initial stage of bilateral pleuro pneumonia and from the first, though unremitting in their care, took the most desponding view of his case. An apparent rally on the Thursday (the 6th) was not maintained and he sank rapidly, while preserving the clearness of his faculties, till, as stated, he passed away in the early morning of the 7th, his wife, his son, his daughter, and Dr. Gallenga being at his bedside.

Giuseppe Lapponi was educated first at the *lycée* of Macerata and then at the University of Bologna, passing through the medical curriculum with a steady, undemonstrative thoroughness which was characteristic of his post-graduate career. Among his teachesr was Dr. Antonio Murri, whose clinique he attended with marked assiduity and whose kindly regard for him he was able effectively to reciprocate when that eminent pathologist had to pass through a domestic trouble rarely experienced in academic life. Having taken his Doctor's degree he first served as a "medico condotto" in his native province and later became known as a sound and successful practitioner to Dr. Alessandro Ceccarelli, then body-physician to Pope Leo XIII. On Ceccarelli resigning that post, after many years' service at the Vatican, Lapponi, at his instance, was appointed as his successor and speedily showed that, comparatively young as he was, the confidence reposed in him was not misplaced. In 1899, in the month of March, Leo had to undergo an operation at the hands of Guido Mazzoni, the eminent Roman surgeon, for an encysted tumour in the lumbar region—an operation fully described in THE LANCET at the time, and evoking universal interest for the issues involved—the age of the venerable patient (90 years), the cheerfulness with which he submitted to the ordeal, and his steady refusal to be anæsthetised even locally. The success of the operation was complete and Leo resumed his strenuous life of combined study and diplomacy till in the July of 1903 his health, long precarious, began to give way. At that time the whole work in attendance and in consultation at frequent intervals fell upon Lapponi, whose anxieties were still further enhanced by the state of siege which he endured morning, noon, and night at the hands of journalists of all nationalities eager for news of the nonagenarian patient and his chance of recovery. At length, after a three weeks' struggle, Leo succumbed, lucid to the last and seemingly more concerned to recite to his attendants the Latin couplets which he had composed in the small hours than to answer questions as to how he felt. On the accession of Pius X. Lapponi was reappointed to the post of "protomedico," or "archiatra Pontificio," and was barely three months in office when he was recalled from his native province, where, with his family, he had been in *villeggiatura*, to attend the Pope who had been seized with acute gout in the knee. A night journey brought him to the Vatican, where he remained in attendance till his patient was well enough to resume his audiences and other duties. But by that time Lapponi began to show signs that the strain of the last three or four years had told upon him and at first anæmia, followed by persistent malaise and general languor, awoke the suspicions afterwards all too amply verified. Still he continued at his post, although relaxing his consultant work and concentrating his rapidly waning energies on his patient at the Vatican. Finally, as has been pointed out above, the Pope himself intervened and constrained Lapponi to make himself the real patient, and took care, by telephonic messages six times a day, to see that his instructions were duly observed. At last the end came and the "beloved physician" of two Pontiffs passed away.

Dr. Lapponi was director of the hospital of the Fata-bene-Fratelli and attended the clinical wards with punctuality and effect, thereby doing much to increase their efficiency. He has left little as contributions to the literature of the profession beyond an acute and interesting treatise on Hypnotism. But his lectures on medical juri-prudence are believed to be in manuscript, lectures addressed to ecclesiastical students in the last year of their curriculum, and highly popular when they were delivered, till the course was suppressed by the reigning Pontiff. He has also, it is stated left a diary the publication of which, under judicious editorship, may one day provide the world with much interesting matter as to the non-official *vie intime* of the Vatican.

At 9 A.M. on Monday last (the 10th inst.) the funeral service was performed over his remains in the church of S. Joachim, previously to their interment at the Campo Verano by the Confraternity of the Sacconi, to which he belonged. As we write it is announced that the Pope has nominated as his successor a compatriot physician from Venice—Dr. Della Venezia, who was in attendance on His Holiness when he was simply known as Cardinal Sarto and who followed the cardinal in his suite at the conclave of 1903 at which he was elected Pope under the title of Pius the Tenth.

GEORGE BAGOT FERGUSON, M.D., M.CH. OXON., F.R.C.S. ENG.,

SENIOR SURGEON TO THE CHELTENHAM GENERAL HOSPITAL.

Dr. George Bagot Ferguson died suddenly at the Cheltenham Hospital on Nov. 27th from syncope whilst performing an operation. The deceased, who was 63 years of age, was educated at Cheltenham College and after passing with distinction through the University of Oxford he proceeded to St. Bartholomew's Hospital. After holding the appointment of house surgeon at that institution he commenced practice at Cheltenham and was appointed to the honorary staff of the Cheltenham General Hospital, being senior surgeon at the time of his death. He was also surgeon to Cheltenham College and to the Female Training College. It was largely through the exertions of Dr. Ferguson that the Cheltenham mineral waters have recently attracted the attention of the medical profession. In 1901 Dr. Ferguson was president of the British Medical Association on the occasion of the annual meeting being held at Cheltenham and his address was on Scientific Research. He was a fluent French speaker and always anxious that the annual meetings should attract foreigners as well as British practitioners, and the Cheltenham meeting was certainly attended by a larger number of foreigners than usual. He was a frequent contributor to the medical press.

Dr. Ferguson was highly esteemed in Cheltenham and his skill as a consultant and operating surgeon was much appreciated by the general practitioners of the town and district. The funeral took place at Prestbury, near Cheltenham, on Dec. 1st. The first part of the service was held in the Cheltenham College Chapel. There was a large attendance, and amongst those present were most of the medical men of Cheltenham and representatives from the board of management of the Cheltenham Hospital and also from Cheltenham College, St. Paul's Training College, and the Chamber of Commerce.

RICHARD WILLIS, M.R.C.S. ENG., L.S.A.

Mr. Richard Willis died at his residence, Dostabrook, Horrabridge, Devonshire, on Dec. 4th after a few days' illness from pneumonia, following influenza. The deceased was the son of the late Mr. John Willis of Plymouth and received his medical education at Guy's Hospital, becoming qualified as M.R.C.S. Eng. and L.S.A. in 1842 and 1841 respectively. Mr. Willis shortly afterwards settled at Tavistock and at one time had the largest practice in the district, his work extending from Ashburton to Plymouth.

He was for many years a member of the Tavistock board of guardians and of the old highway board of that town. For a long period he acted as churchwarden at Horrabridge church. Mr. Willis was in his 87th year at the time of his death. There is a tradition in the neighbourhood that he never wore an overcoat, although he frequently had to drive over bleak moors to visit his patients. He retired from active practice some years ago and took up his residence at Horrabridge, but nevertheless was often summoned in cases of emergency to visit some of his old patients. The funeral took place at Whitchurch (Devon) churchyard on Dec. 7th in the presence of a large gathering.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Georg Heimann, well known as a most painstaking and accurate collector of medical statistics. He was in the service of the Berlin municipality.—Dr. Giovanni Rossi, *privat-docent* of anatomy in the University of Naples.—Professor Isidor Zabludowski, director of the Berlin University Institute for Masso-therapy, at the age of 55 years. He was a Russian by birth and went through the Russo-Turkish war. Afterwards he studied massage under Metzger in Amsterdam and subsequently went to Berlin where he worked with Professor Bergmann and succeeded in getting the specialty of masso therapeutics recognised by the University authorities.—Dr. Battlehner, who was for many years medical referee for the Grand Duchy of Baden. He organised the Red Cross Society and latterly threw himself into the campaign against tuberculosis. He was over 80 years of age.

ELECTION OF DIRECT REPRESENTATIVES FOR ENGLAND AND SCOTLAND ON THE GENERAL MEDICAL COUNCIL.

THE following is the result of the recent voting for Direct Representatives on the General Medical Council:—

ENGLAND.

DR. H. LANGLEY BROWNE	4861
DR. L. S. MCMANUS	4286
DR. H. A. LATIMER	4002
MR. GEORGE JACKSON	3985
MR. GEORGE BROWN	3773
MR. JOSEPH SMITH	2489
DR. F. J. SMITH	2013
MR. G. H. BROADBENT	1785
DR. C. J. RENSHAW	1088
DR. J. MILSON RHODES	855

SCOTLAND.

Dr. N. WALKER was successful by a majority of 429 votes over Dr. W. BRUCE.

Medical News.

UNIVERSITY OF OXFORD.—The following have passed the examination in pathology in the Second B.M.:—

M. B. Baines, B.A., Exeter College; S. Hartill, B.A., and H. A. Philpot, B.A., New College; and S. E. Whitnall, B.A., Magdalen College.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bahia:* Dr. Josino Cotias has been appointed Professor of Forensic Medicine in succession to the late Professor Nina Rodriques.—*Berne:* Dr. Albu Kocher has been recognised as *privat-docent* of Internal Medicine.—*Breslau:* Dr. Ziegler has been recognised as *privat-docent* of Internal Medicine.—*Liège:* Dr. Lemaire has been appointed Professor of Internal Medicine in succession to Dr. Zermicourt, resigned, and Dr. van Gehuchten Professor of Neuro-Pathology.—*Rome:* Dr. Luigi Concetti has been appointed Extraordinary Professor of Paediatry.

IN HONOUR OF PIROGOFF.—The rector of the University of Moscow has, the *Novoe Vremya* announces, presented a petition of the medical faculty to the governor of the town to change the name of Boschoi Tzaritzin-street to Pirogovskoi-street in commemoration of the twenty-fifth anniversary of the death of the famous surgeon Pirogoff, or failing that to call the square in front of the clinic building Pirogoff-square.

THE WORKMEN'S COMPENSATION ACT.—At the Exeter county court on Nov. 8th a widow and her two sons were awarded £164 as compensation for the death of her husband who contracted anthrax whilst skinning a bullock. His honour directed that £134 should be handed over to the widow and that the balance should be invested for the two sons.

SOCIETY OF ARTS.—At the Society of Arts on Dec. 5th a paper entitled "Some Objections to the Compulsory Introduction of the Metric System" was read by Colonel Sir Charles M. Watson. In the first portion of the paper he gave an interesting account of the methods by which the metric units of length, surface, capacity, and weight were arrived at in France in the end of the eighteenth century. The first legislation with this object in view took place in 1790 and the work was completed by the construction of a standard metre and kilogramme made of platinum and deposited in the Archives in June, 1799. An outline of the short-lived innovations contained in the republican calendar and of the abortive proposal to subdivide the circle into 400 parts was also given. Although he admitted that there might possibly be some advantage in a decimal system of coinage, Sir Charles Watson was altogether opposed to the use of the metric weights and measures, and he called particular attention to their practical unsuitability in British textile industries and land measurement. The ensuing discussion was continued for more than an hour and was occasionally very animated on the part of the opponents of the metric system. Sir David Gill, Astronomer-Royal at Capetown, who presided, and Lord Belhaven spoke in favour of it. Mr. Thomas Parker, a member of the Institute of Civil Engineers, opposed it, at the same time recommending that the present British weights and measures should be modified by making an inch the unit of length and a cubic inch the unit of capacity. Several who desired to speak were debarred by the time limit. There was obviously no general agreement of opinion among the audience.

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.—At a meeting of this society held on Dec. 3rd the following were elected as officers and members of the council for the ensuing session 1906–07:—President: Mr. Alphonso Elkin Cumberbatch. Vice-Presidents: Mr. Arthur Henry Cheatle, Dr. John Middlemass Hunt, Dr. Adam Brown Kelly, and Mr. Richard Lake. Honorary Treasurer: Dr. Edward Law. Honorary Editor of Transactions: Dr. Walter Jobson Horne. Honorary Librarian: Mr. Laurie Asher Lawrence. Council: Dr. Frederick William Bennett, Mr. Charles Herbert Fagge, Mr. Joseph Nelson, Dr. William Permewan, and Mr. Hunter Finlay Tod. Honorary Secretaries: Mr. Henry Secker Walker and Mr. Ernest Blechynden Waggett.—At the annual dinner held on the evening of the same day the President, Mr. Cumberbatch, occupied the chair. After the usual loyal toasts Dr. Frederick T. Roberts proposed "The Otological Society" coupled with the name of the President, who responded. Mr. E. Cresswell Baber proposed "The Guests." The toast was responded to by Sir James Reid.

UNIVERSITY OF CAMBRIDGE.—The Vice-Chancellor acknowledges donations to the University Benefaction Fund during the present year amounting to over £14 500. Most of them are assigned to special purposes, including the completion of the medical school buildings and the endowment of the Huddersfield lectureship in special pathology. In addition a sum of about £17,500 has been promised for the University library.—Professor Howard Marsh has been elected a member of the General Board of Studies.—Mr. F. Darwin, M.B., F.R.S., and Mr. T. Manners-Smith have been appointed members of the degree committee of the Special Board for Biology.—Mr. A. G. Tansley, assistant professor at University College, London, has been appointed university lecturer in botany.—Mr. T. G. Bedford has been appointed assistant demonstrator of physics at the Cavendish Laboratory.—Dr. A. R. Cushny has been appointed additional examiner in pharmacology; Dr. R. T. Hewlett additional examiner in pathology; Dr. R. M. Simon additional examiner in medicine; Mr. R. Johnson, Mr. F. F. Burghard, and Mr. C. Wallace additional examiners in surgery for the M.B. degree.—For the M.C. examination there are nine candidates this term, an unprecedented number.—Walsingham medals for biological research have been awarded to W. E. Agar, King's, and W. L. Balls, St. John's.—Mr. E. M. Corner, M.A., M.B., B.C., of Sidney Sussex College, has been approved for the degree of Master of Surgery on the ground of his original contributions and researches.—The syndicate appointed to consider the subject have unanimously recommended that the ground lying between the medical school and the chemical laboratory, facing Pembroke-street, should be assigned for the extension of the laboratory. A porter's lodge and entrance gateway to the museum's quadrangle are to be provided close to the medical school. This will complete the range of buildings extending from the Humphry Museum to the engineering laboratory, and provide much-needed accommodation for chemistry without interfering with the outlook from the medical school.—The board of anthropological studies propose that a diploma in anthropology should be established for candidates who have shown a general knowledge of the subject and have presented an approved thesis on some special branch of it.—The examination for the University diploma in tropical medicine and hygiene will begin on Wednesday, Jan. 2nd, in Cambridge, and will be completed in the wards of the Seamen's Hospital, Royal Albert Dock, on Saturday, Jan. 5th, 1907.—The grace for establishing a university lectureship in hygiene will be offered to the Senate on Jan. 17th. At the congregation on Dec. 6th Mr. E. W. Barnes, M.A., of Trinity, was admitted to the degree of Doctor of Science.

THE Right Hon. H. H. Asquith, Lord Rector of the University of Glasgow, presided at a dinner given by the Glasgow University Club, London, at the Trocadéro, London, on Dec. 7th. A number of medical men were present, amongst whom were Lieutenant-Colonel W. Babtie, V.C., R.A.M.C., Dr. C. O. Hawthorne, Dr. G. A. Heron, Dr. Donald MacAlister, Mr. Chichele Nourse, Sir Richard Douglas Powell, Dr. T. D. Savill, and Dr. Leonard Williams. Mr. Asquith, in proposing the toast of "The University and the Club," said that they were told that the University of Glasgow was founded some four and half centuries ago by Pope Nicholas V., the first of the humanist Popes. Glasgow was not the oldest of the European universities, ranking in point of age below Paris and Bologna, but the prescience of the Pope had been justified. The peculiar characteristic of the University of Glasgow was its juxtaposition with a great and growing industrial community. He hoped the club would continue to be a meeting place for men coming from Glasgow University and that it would always be a bond of union in the great metropolis of Glasgow. Professor J. Adams proposed the toast of "The Guests," which was replied to by Sir Richard Douglas Powell who praised the city of Glasgow for the great progress made there in sanitation. Professor MacCallum of Australia also responded to this toast and described how many medical men at Sydney belonged to an association there of graduates and old students of Glasgow University. Mr. W. Lorimer submitted the toast of "The Chairman," and Mr. Asquith having acknowledged the compliment the proceedings terminated.

ROYAL ALBERT HOSPITAL, DEVONPORT.—The annual meeting of the governors of this institution was held on Nov. 24th under the presidency of Major-General Sir R. Pole-Carew. The medical report stated that for the year ended Sept. 30th last 771 in-patients had been admitted against 796 during the previous 12 months. The daily average number of in-patients was 45·92. There were 2366 cases treated in the casualty department, and 924 out-patients attended the ophthalmic surgeon. There were 1059 members on the books of the provident dispensary in connexion with the hospital. The financial statement showed that the expenditure amounted to £4283, and an unfavourable balance of £201 remained. The working classes contributed £585.

THE HOSPITAL OFFICERS' ASSOCIATION.—At the new Gaiety Restaurant, on Friday, Dec. 21st, at 8 P.M., Sir Henry Burdett, K.C.B., will read a paper on the Excessive Free Medical Relief, Medical Discontent, and the Remedy for Both. This will be followed by discussion.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Poisons and Pharmacy Bill.

THE Government has decided not to proceed further with its Poisons and Pharmacy Bill this session. It is understood that it will be re-introduced early next year.

HOUSE OF COMMONS.

MONDAY, DEC. 10TH.

Sleeping Sickness.

Mr. REES asked the Under Secretary of State for the Colonies whether he was aware that Sir Patrick Manson and Dr. Daniell had satisfactorily established the fact that a cure for sleeping sickness had been discovered by a medical practitioner in Ceylon: and, if so, whether he would supply the authorities in the British Central Africa and other Protectorates with the necessary information in view of the apprehensions entertained in such quarters regarding the spread of this disease.—Mr. CHURCHILL answered: I have communicated with Sir Patrick Manson who informs me, I am sorry to say, that there is no truth in the statement to which my honourable friend refers.

Registration of Still born Children.

Sir WALTER FOSTER asked the President of the Local Government Board whether he had considered the advisability of introducing a Bill to deal with the registration of still-born children; and, if so, whether he could deal with the subject of death certification generally or partially, in accordance with the recommendations of the Select Committee of 1893.—Mr. JOHN BURNS said: I think that it is desirable that the law as to registration of still-born children should be amended when a suitable opportunity offers, but I am not in a position at present to promise a Bill on the subject or to say how far any such Bill could deal with the other matters referred to in the report of the Select Committee.

TUESDAY, DEC. 11TH.

Infantile Mortality.

Mr. BRAMSDON asked the Secretary of State for the Home Department whether, considering the high death-rate amongst infants under one year, some of the causes of which were preventable, he was taking any steps, and, if so, what, to deal with the matter; and, in particular, whether it was suggested that a Royal Commission should be appointed to examine into and report upon the whole question of infantile mortality with a view of legislation being introduced at an early date.—Mr. JOHN BURNS answered. He said: The Government fully realises the importance of the subject of infantile mortality and I am collecting information with reference to the influences affecting it. A suggestion has been made as to the appointment of a Royal Commission to inquire into the matter, but I do not think that it would be desirable to appoint such a commission at the present time.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, 41 and 43, Maddox-street, Bond-street, London, W.

The Chemical Investigation of Gastric and Intestinal Diseases by the Aid of Test Meals. By Vaughan Harley, M.D. Edin., M.R.C.P., F.C.S., Professor of Pathological Chemistry, University College, London; and Francis W. Goodbody, M.D. Dubl., M.R.C.P., Assistant Professor of Pathological Chemistry, University College, London. Price 8s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, London, W.C.

Text Book of Comparative General Pathology. For Practitioners and Students of Veterinary Medicine. By Professor Dr. Th. Kitt of Munich. Authorised Translation by Dr. William W. Cadbury, Assistant Demonstrator of Pathology in the University of Pennsylvania. Edited with Notes and Additional Illustrations by Dr. Allen J. Smith, Professor of Pathology in the University of Pennsylvania. Price 25s. net.

FISCHER, GUSTAV, Jena.

Uber die Rolle des Sympathicus bei der Erkrankung des Wurmfortsatzes. Von Dr. E. Hönck, Hamburg. Price M. 4.

Experimentelle und klinische Untersuchungen über die Histogenese der myeloiden Leukämie. Von Dr. Kurt Ziegler, Privatdozent und Assistent der kgl. medizinischen Klinik in Breslau. Price M. 4.50.

HAZEL, WATSON, AND VINEY, LIMITED, 52, Long-acre, London, W.C.

Hazell's Annual for 1907. Price 3s. 6d. net.

KING, P. S., AND SON, Orchard House, Great Smith-street, Westminster, London, S.W.

Politics and Disease. By A. Goff and J. H. Levy. (Printed by The Personal Rights Association, 32, Charing Cross, London, S.W.) Price 3s. 6d. net.

LEWIS, H. K., 136, Gower-street, London, W.C.

The Bacteriological Examination of Water-supplies. By William G. Savage, B.Sc., M.D. Lond., D.P.H., Medical Officer of Health and Public Analyst, Colchester. Price 6s. 6d. net.

A Handbook of the Diseases of the Eye and their Treatment. By Henry R. Swanzy, A.M., M.D. (Causâ hon.) Univ. Dub., President of the Royal College of Surgeons in Ireland; and Louis Werner, M.B., F.R.C.S.I., Sen. Mod. Univ. Dub., Ophthalmic Surgeon to the Mater Hospital. Ninth edition. Price 12s. 6d.

LONGMANS, GREEN, AND CO., London, New York, and Bombay.

School Hygiene and the Laws of Health. A Text-book for Teachers and Students in Training. By Charles Porter, M.D., B.Sc., M.R.C.P. Edin., of the Middle Temple, Barrister-at-Law, Assistant Medical Officer of Health and Chief Sanitary Inspector, Leeds. Price 3s. 6d.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ATKINSON, E. L., M.R.C.S., L.R.C.P. Lond., has been appointed to the Ear Department at St. Thomas's Hospital.

BENNETT, H. G., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

BUTLER, G. G., M.R.C.S., L.R.C.P. Lond., has been appointed to the Ear Department at St. Thomas's Hospital.

CASSIDY, M. A., M.B., B.C. Cantab., has been appointed Resident House Physician at St. Thomas's Hospital.

COX, R. J. H., M.B., B.S. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

DICKSON, A. N., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

DIXON, WILLIAM JOHN, M.B., B.S. Madras, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Templecombe District, by the Wincanton (Somerset) Board of Guardians.

DREW, J. H., M.B., B.S. Lond., has been appointed Junior Casualty Officer at St. Thomas's Hospital.

DUNKLEY, E. V., M.B., B.S. Lond., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

EYRE, C. R. B., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Obstetric House Physician at St. Thomas's Hospital.

FRANKLIN, C. L., M.B., Ch.B. Vict., has been appointed Junior House Surgeon at the Oldham Infirmary.

GAMLEN, R. L., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

GOYELENE, H. E., M.R.C.S., L.R.C.P. Lond., has been appointed Senior Ophthalmic House Surgeon at St. Thomas's Hospital.

HEWETT, F. S., M.R.C.S., L.R.C.P. Lond., has been appointed Resident House Surgeon at St. Thomas's Hospital.

HOOKER, A. W., M.B., B.S. Lond., has been appointed Senior Casualty Officer at St. Thomas's Hospital.

HOWARTH, W. G., M.B., B.C. Cantab., has been appointed Resident House Surgeon at St. Thomas's Hospital.

HOWITT, A. B., M.B., B.C. Cantab., has been appointed Resident House Surgeon at St. Thomas's Hospital.

HUGGINS, G. M., M.R.C.S., L.R.C.P. Lond., has been appointed to the Skin Department at St. Thomas's Hospital.

JUBB, ARCHIBALD, M.D. Glasg., has been appointed Extra Assistant Physician to the Glasgow Royal Infirmary.

KISCH, H. A., M.B., B.S. Lond., has been appointed to the Ear Department and to the Electrical and X Ray Departments at St. Thomas's Hospital.

MACDONALD, S. G., M.P., B.C. Cantab., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

NIGHTINGALE, H. J., M.R.C.S., L.R.C.P. Lond., has been appointed to the Children's Surgical Department at St. Thomas's Hospital.

PAGE, C. M., M.B., B.S. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

PERROTT, CHARLES JOHN, L.R.C.P. & S. Irel., has been re-appointed Medical Officer of Health for the Kingswood Urban District Council.

PHILPOT, H. A., M.R.C.S., L.R.C.P., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

READ, H. W., M.R.C.S., L.R.C.P. Lond., has been appointed to the Dental Department at St. Thomas's Hospital.

SANKEY, W. O., M.B., B.S. Lond., has been appointed Resident House Physician at St. Thomas's Hospital.

SQUIRES, H. C., M.B., B.Ch. Oxon., has been appointed Resident House Physician at St. Thomas's Hospital.

SURR, A. C. H., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Obstetric House Physician at St. Thomas's Hospital.

TREVES, F. B., M.R.C.S., L.R.C.P. Lond., has been appointed to the Throat Department at St. Thomas's Hospital.

WALKER, S. L., M.R.C.S., L.R.C.P. Lond., has been appointed to the Skin Department at St. Thomas's Hospital.

WALLACE, J., M.R.C.S., L.R.C.P. Lond., has been appointed to the Throat Department at St. Thomas's Hospital.

WARD, W. C. A., M.R.C.S., L.R.C.P. Lond., has been appointed Junior Ophthalmic House Surgeon at St. Thomas's Hospital.

WHITEHEAD, C. E., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician to Out-patients at St. Thomas's Hospital.

WHITEHOUSE, H. B., M.B., B.S. Lond., has been appointed House Surgeon to Out-patients at St. Thomas's Hospital.

WRIGHT, HAROLD NAIRNE, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed House Physician at St. Bartholomew's Hospital, Rochester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £100, with lodging, board, and laundry.

BRENTFORD UNION.—Medical Officer and Public Vaccinator. Salary £160 per annum and fees.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—Assistant House Surgeon. Salary £50 per annum, with board, rooms, and attendance.

BURLEY-IN-WHARFEDALE, SCALEBOR PARK PRIVATE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, attendance, &c.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Resident Medical Officer, unmarried. Salary £80 per annum.

DERBYSHIRE ROYAL INFIRMARY.—Two House Surgeons, a House Physician, and an Assistant House Surgeon. Salary of three former £100 per annum, and of latter £60 per annum, with apartments, board, &c.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EASTERN DISPENSARY, Leman street, Whitechapel, E.—Resident Medical Officer. Salary £120 per annum, with residence, coals, and attendance.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician, for six months. Salary £25, with board, residence, laundry, &c.

EPILEPTIC COLONY, Ewell, Surrey.—Medical Superintendent. Salary £600 a year, with unfurnished house.

GLOUCESTER, GENERAL INFIRMARY AND EYE INSTITUTION.—House Surgeoncy. Salary £100 per annum, with residence, board, and washing.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Casualty Officer. Salary £100 per annum.

GRESHAM LECTURESHIP ON PHYSIC.

HORTON ASYLUM, Epsom, Surrey.—Medical Superintendent. Salary £1000 a year, with unfurnished house.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.

INDIAN MEDICAL SERVICE, India Office, London.—Examination for not less than 18 Commissions.

LEAMINGTON, WARNEFORD HOSPITAL.—House Physician. Salary £60 per annum, with board, washing, and apartments.

LONDON HOSPITAL, Whitechapel, E.—Assistant Physician.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 a year, with rooms, attendance, board, and washing.

MANCHESTER ROYAL INFIRMARY.—Director of the Clinical Laboratory. Salary £100 per annum.

MARGATE, ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon. Salary at rate of £80 and £120 per annum, with board and residence.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C.—House Physician. Salary £20 per annum, with board and residence.

NEW HOSPITAL FOR WOMEN, Euston-road.—Two Clinical Assistants (females).

NEWPORT (MON.) BOROUGH ASYLUM, Caerleon.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and attendance.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon, also House Physician, for six months. Salary in each case at rate of £60 per annum, with board, residence, and laundry.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeons, for six months. Honorarium £20, with board, lodging, and washing.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—Weber-Parkes Prize and Medals. Prize of 150 guineas and Two Silver Medals.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, S.E.—Junior Resident Medical Officer. Salary at rate of £40 per annum, with board and washing.

ST. PANCRAS INFIRMARY (NORTH), Dartmouth Park-hill, N.—Junior Assistant Medical Superintendent. Salary £75, with apartments, rations, and washing.

ST. PANCRAS AND NORTHERN DISPENSARY, 126, Euston-road.—Honorary Physician.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and lodging.

SHEFFIELD FEVER HOSPITALS.—Junior Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing. Also Fourth, Fifth, and Sixth Resident Medical Officers. Salary of former £60 per annum and of two latter £50 each per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

TAUNTON, TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

THORPE, NORWICH, NORFOLK COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum and all found.

TOTTENHAM HOSPITAL, London, N.—Two Honorary Assistant Physicians. Also Pathologist. Honorarium £20 per annum.

UNIVERSITY OF LONDON.—Examiners in Medicine, Surgery, Anatomy, Physiology, Obstetric Medicine, Pharmacology, including Pharmacy and Materia Medica, Forensic Medicine and Hygiene, State Medicine, and Mental Diseases and Psychology.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Terms £70 per annum, with rooms, board, and washing.

WREXHAM INFIRMARY.—Resident House Surgeon. Salary £80 per annum, with board, lodging, and washing.

YORKSHIRE, COUNTY COUNCILS OF THE EAST AND WEST RIDINGS.—Bacteriologist to carry out investigation of Milk-supply. Remuneration £250 and out-of-pocket expenses.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeon under the Factory and Workshop Act at Stoney Stanton, in the county of Leicester; at Ipswich, in the county of Suffolk; and at Braemar, in the county of Aberdeen.

Births, Marriages, and Deaths.

BIRTHS.

CRICHTON MILLER.—On Dec. 7th, at Villa Mary, San Remo, the wife of H. Crichton Miller, M.D., of a son.

WILLCOX.—On Dec. 5th, at Hoveden-road, Cricklewood, N.W., the wife of William Henry Willcox, M.D., of a daughter.

MARRIAGE.

DAVIES—WALTON.—On Dec. 6th, at St. John's Church, Tunbridge Wells, David Davies, M.B., Honorary Surgeon to the Tunbridge Wells Eye and Ear Hospital, to Rosalind Marjorie, daughter of the late Charles Walton and of Mrs. Walton, Ardenhurst, Tunbridge Wells.

DEATHS.

ACKERY.—On the 10th inst., at his residence, 11, Queen Anne-street, Cavendish-square, W., John Ackery, M.R.C.S., L.D.S., suddenly, in his 50th year.

RAW.—On the 6th inst., Dudley Moffatt, the dearly loved Boy of Dr. and Mrs. Nathan Raw, of 66, Rodney-street, Liverpool, aged 3½ years.

WAUGH.—On Dec. 9th, at Midsomer Norton, Somerset, after a few days' illness, Alexander Waugh, M.R.C.S., L.R.C.P., aged 66 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"VIAVI TREATMENT."

WE extract the following from the *Liverpool Post* of Dec. 7th, 1906:—

THE VIAVI TREATMENT.—Miss M. S. Glassford (London) gave a very interesting address to ladies on the occasion of the opening of the Viavi Company's new offices, in Crane's Buildings, Church-street. The lecturer dwelt upon the necessity of bringing about a better physical condition among women. She pointed out the fact that the education of girls is defective, because it does not fit them for motherhood. She impressed upon them that their highest and noblest function is to become the mothers of the future generations of citizens, and that on them devolves the responsibility for their physical as well as their moral well-being. There was a very large and appreciative audience.

We are sorry to learn that a large number of women in Liverpool can be found to listen to Viavi lectures. The literature issued by the Viavi Company is of the usual dirty type affected by quacks who profess to cure sexual diseases. We commend to the notice of the *Liverpool Post* two cases reported in our columns under date Jan. 17th, 1903, p. 211.

RUSSIAN MEDICAL STUDENTS AND THEIR EXAMINING PROFESSORS.

ON Dec. 4th, according to the *Novoe Vremya*, as a number of students in the Medical Academy were being put through their final examination, Professor J. E. Shavlovsky, professor of anatomy, who had began to examine 65 students of the group, observing their very imperfect knowledge spoke of it to one of the students. A hospital inspector who happened to be present asked the professor what right he had to make such an observation. Thereupon Professor Shavlovsky and Professor N. J. Ivanovsky, president of the examining committee, answered that an inspector had no right to demand any kind of explanation from the professors. Then all the students under examination left the auditorium demonstrating, and now they demand another professor for their examination in anatomy.

CARRUTHERS *v.* THE MUTUAL LIFE INSURANCE COMPANY OF NEW YORK.

A CASE of some interest to the medical profession, though involving no particular legal or ethical principles, was decided on Monday last by a special jury before Mr. Justice Darling. Dr. S. W. Carruthers having resigned his private practice for the purpose entered into a "permanent" position with the defendant company. For motives of economy the New York directorate gave him notice of dismissal with three months' salary. The jury having answered certain questions left to them by Mr. Justice Darling in the plaintiff's favour, his lordship found that Dr Carruthers was entitled to a year's notice, and awarded him a year's salary with costs.

THE WAY TO ACQUIRE "ESTEEMED FRIENDS."

MANY of us would like to know how it is that a complete stranger is able by some esoteric art to address us as an "Esteemed Friend," and, in order to prove that he is acquainted with our caligraphy or cacography, to inclose a specimen of our signature. This is what the Brahmo Lever Watch Co. of 96, Newgate-street, London, E.C., has done to one of our correspondents in a letter offering to award to him as a prize a Brahmo gold watch if he will send them a postal order for 6*s.* 11*d.* for a Brahmo gold chain to wear with the watch. The offer is made "in order to introduce our superior line of jewellery," "and can only be held open for eight days." The company says in its circular, "You were introduced to us by a friend"; he is not named and is not given the benefit of the honourable appellation of "esteemed." May we suggest that he was a wastepaper dealer or a person who had obtained possession of a packet of letters or post-cards asking a respectable firm for samples. We remember that recently a person in the watch trade confessed in the police-court that he obtained signatures at so much per 1000 in this manner for use in his business.

CURIOUS NAMES.

THE correspondent who sent us the note upon the name "Actcyner," to which we referred in THE LANCET of Dec. 1st, now writes to us inclosing a letter from the rector of the parish in which Actcyner Pickering was buried. The rector in his letter says that he has consulted the registers and finds the name there as stated. The mother of the deceased gave to the rector the following explanation of the circumstance which caused her son to be so named. Just before her confinement her husband was standing at the door and saw a wagon pass upon which was painted the name Actcyner, but whether this was a Christian or a surname she did not remember. Her husband was struck by the name and followed the wagon until he could spell the name correctly. Returning home he said to his wife that if the coming child should prove a boy he should be christened Actcyner. This explanation, of course, does not explain the origin of the name, although it is a curious commentary upon the queer way in which some folk name their children.

THE CASE OF MR. PEERS.

To the Editors of THE LANCET.

SIRS,—I have great pleasure in acknowledging the following contributions towards the indemnity fund which is being raised for Mr. Peers. As the list will be closed shortly I shall be obliged if any further amounts could be sent to me during next week.

I am, Sirs, yours faithfully,

278, Old Kent-road, S.E. C. H. PRINCE.

	£	*s.*	*d.*
Previously acknowledged	7	6	0
London and Counties Medical Protection Society	10	10	0
Dr. Robert Boxall	5	5	0
Dr. Amand Routh	2	2	0
Dr. Chas. Stirling	1	0	0
Dr. C. P. Gallie...	1	1	0
Mr. H. M. Walker	1	1	0
Mr. R. Capes	1	1	0
Mr. J. Kennedy	1	1	0
Mr. J. G. Carter	0	10	0
Mr. Stanley Boyd	0	10	6
Dr. R. D. Muir	0	5	0

WE have received from Messrs. Cadbury some samples of their chocolate confections packed in fancy boxes. The novelties include chocolate candy, crème almonds, Edelweiss chocolate, and others.

Celsus has asked our advice in the following circumstances. A resident patient has been sent to him for neurasthenia and depression owing to a recent sorrow. Some melancholy has developed and delusions as to a late relative's end. The friends object to certification. What is "Celsus's" position and is he justified in keeping her uncertified? It greatly depends on the severity of the depression; if the patient is actively suicidal or is so insane as not to understand her position "Celsus" is not justified in keeping her except under certificates; if, on the other hand, notwithstanding a certain degree of melancholy, the patient is anxious and willing to be treated, we do not consider that he would be breaking the law if she remained under his care. "Celsus" scarcely tells us enough to make it possible to give a definite opinion: for instance, the delusion referred to may be merely an indefinable fear or it may be so marked as to lead to errors of conduct. We should advise "Celsus" to consult with a colleague and if it is decided that the patient is unfit to be treated except under certificates, he should either refuse to keep her or should inform the friends that he will have to approach the Commissioners in Lunacy, 66, Victoria-street, S.W., in order to ask their opinion.

Disgusted.—We deplore such publicity, but we do not see how our correspondent is prepared to prove that the operating surgeon was the guilty party. Even if the information came in detail from him it does not follow that he meant it to appear in a newspaper.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond street (3 P.M.).

TUESDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (19th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (20th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.).

FRIDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt.

Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), St. Mark's (2.30 P.M.).

SATURDAY (22nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (18th).—THERAPEUTICAL SOCIETY (Apothecaries' Hall, Blackfriars, E.C.).—4.30 P.M.: Papers:—Dr. J. P. Parkinson: Further Experiences of the Serum Treatment in Gonorrhœal and other Infections.—Dr. W. B. Hope: The Benefit of Antidiphtheritic Serum in Tuberculous Diseases.

PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M.: Paper:—Dr. Chalmers Watson: Some Recent Researches into the Effects of an Excessive Meat Diet in Animals and in their Progeny.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (17th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. M. H. Macleod: Clinique. (Skin.) 5.15 P.M.: Lecture:—Prof. W. Cheyne: Some Surgical Considerations.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Sir D. Duckworth: Medicine. 3.15 P.M.: Mr. W. Turner: Surgery. 4 P.M.: Dr. St Clair Thomson: Throat and Ear. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat.

TUESDAY (18th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. B. Abrahams: Clinique. (Medical.) 5.15 P.M.: Lecture:—Dr. J. Taylor: Optic Neuritis and Optic Atrophy in Nervous Diseases.

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. T. Hewlett: Medicine. 3.15 P.M.: Mr. Carless: Surgery. 4 P.M.: Mr. M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

CENTRAL LONDON OPHTHALMIC HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Mr. Wells and Mr. Maclehose: Classes of Instruction in the Use of the Ophthalmoscope, with Demonstrations of Cases.

WEDNESDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. J. Cantlie: Clinique. (Surgical.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. F. Taylor: Medicine. 3.30 P.M.: Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

CENTRAL LONDON THROAT AND EAR HOSPITAL (Gray's Inn-road, W.C.).—5 P.M.: Demonstration:—Dr. W. Wingrave: Clinical Pathology.

THURSDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.)

LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. G. Rankin: Medicine. 3.15 P.M.: Sir W. Bennett: Surgery. 4 P.M.: Mr. M. Davidson: Radiography. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Ear and Throat.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell: Bullous and Vesicular Eruptions: I., Urticaria; II., Pemphigus; III., Pompholyx; IV., Varicella.

FRIDAY (21st).—LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich).—2.30 P.M.: Operations. 2.30 P.M.: Dr. R. Bradford: Medicine. 3.15 P.M.: Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 12 noon: Skin.

SATURDAY (22nd).—LONDON SCHOOL OF CLINICAL MEDICINE (Dreadnought Hospital, Greenwich.)—2.30 P.M.: Operations. Out-patient Demonstrations:—10 A.M.: Surgical and Medical. 11 A.M.: Eye.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Dec. 13th, 1906.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 7	30·366	N.E.	0·04	55	43	38	36	39	Cloudy
,, 8	30·122	W.		47	46	34	37	39	Cloudy
,, 9	29·650	N.W.	0·07	60	39	39	37	39	Cloudy
,, 10	29·834	N.	0·03	58	38	31	30	33	Fine
,, 11	29·846	S.W.		48	48	30	33	35	Overcast
,, 12	29·830	S.W.	0·15	64	46	35	44	45	Cloudy
,, 13	29·552	S.W.	0·09	42	41	35	36	37	Foggy

During the week marked copies of the following newspapers have been received: *Scotsman, Bradford Observer, Broad Arrow, Newcastle Chronicle, Daily News, Southern Daily Echo, Literary Digest, Western Mail (Cardiff), The Tribune, Chatham Observer, Wakefield Express, Westminster Gazette, Sheffield Independent, Exeter Gazette, Hereford Times, Portsmouth Evening News, Dundee Advertiser, Halifax Evening Courier, Scientific American, &c.*

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